



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

DEC 08 2000

MCL COPY
Crawford Street
Agency Correspondence

Reply To
ATTN: ORC-158

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Anton U. Pardini
3200 NW Yeon Avenue
Portland, OR 97210

Re: Notice of Potential Liability for the Crawford Street Corp. facility located at
8524 N Crawford St
Portland Harbor Superfund Site, Portland, Oregon

Dear Mr. Pardini:

This letter is to notify you of potential liability, as defined by Section 107(a) of the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. § 9607(a), as amended (CERCLA), with respect to the above-referenced Site. Substantially the same letter has been sent to 69 parties, and additional general notice letters may be sent to others. You may receive or have already received notification of potential liability for the Site from the State of Oregon Department of Environmental Quality (DEQ).

NOTICE OF POTENTIAL LIABILITY

The United States Environmental Protection Agency (EPA) in cooperation with DEQ has documented the release or threatened release of hazardous substances, pollutants or contaminants at the Site. EPA and DEQ have spent public funds on actions to investigate and control such releases or threatened releases at the Site.

Under Sections 106(a) and 107(a) of CERCLA, 42 U.S.C. §§ 9606(a) and 9607(a), Section 7003 of the Resource Conservation and Recovery Act, 42 U.S.C. § 6973, as amended (RCRA), and other federal and state laws, a Potentially Responsible Party (PRP) or parties may be ordered to perform response actions deemed necessary by EPA and/or DEQ to protect the public health, welfare, or the environment, and may be liable for all costs incurred by each government in responding to any release or threatened release at the Site. In addition, PRPs may be required to pay for damages to, destruction, of, or loss of natural resources, including the costs of assessing such damages.

Printed on Recycled Paper

USEPA SF



1315594

CRAW00000085

EPA, in cooperation with DEQ, has evaluated information in connection with the investigation of the Site. Based on this information, EPA believes Crawford Street Corp. may be a PRP with respect to this Site. PRPs under CERCLA include current owners and operators of any portion of the Site, prior owners and operators at the time of a release, as well as persons who arranged for disposal or treatment of hazardous substances sent to the Site, or persons who accepted hazardous substances for transport to the Site.

In accordance with CERCLA and other authorities, EPA has already undertaken certain actions and incurred certain costs in response to conditions at the Site. These response actions include the performance of assessments and other activities necessary to include the Site on the CERCLA National Priorities List (NPL) of hazardous waste sites, development of a partnership with DEQ for the investigation and cleanup of the Site, and consultation with federal, state and tribal CERCLA Natural Resource Trustees.

In accordance with EPA and DEQ joint management plans for the Site, EPA will be the lead agency, as defined in CERCLA's implementing regulations, also known as the National Contingency Plan (NCP), for in-water contamination at the Site. DEQ will be the lead agency for upland contamination, although the agencies intend to coordinate all their efforts and may share tasks as they deem appropriate. EPA accordingly anticipates expending additional funds for response activities at the Site.

PRP RESPONSE AND EPA CONTACT PERSON

The next major step EPA anticipates taking is the negotiation of an Administrative Order on Consent with willing PRPs for the performance a Remedial Investigation/Feasibility Study (RI/FS) to determine the nature and extent of in-water contamination at the Site, and to analyze remedial alternatives. EPA may send special notice letters, in accordance with Section 122(e) of CERCLA, 42 U.S.C. § 9622(e), which will provide more information about the Site, and set forth a specific schedule for RI/FS negotiations, or EPA may commence negotiations without special notice at the request of voluntary parties able to demonstrate their capacity to adequately fund and perform the RI/FS. You are encouraged to contact EPA by December 28, 2000, to indicate whether you are interested at this time in volunteering to enter negotiations to perform the RI/FS and to reimburse response costs incurred by EPA and to be incurred by EPA at the Site. EPA expressly reserves the right to issue special notice regardless of how many volunteers respond affirmatively to general notice letters.

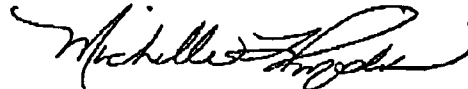
Any written response to this letter should be sent to:

U.S. Environmental Protection Agency
Elizabeth McKenna, Attorney
Office of Regional Counsel
1200 Sixth Avenue, M/S ORC 158
Seattle, Washington 98101

This letter is intended solely for notification and information purposes. Nothing in this letter can be relied upon as a final EPA position on any matter.

Inquiries by counsel or inquiries of a legal nature should be directed to Elizabeth McKenna, 206-553-0016, or Charles Ordine, 206-553-1504, Office of Regional Counsel. Technical, scope, budget, and other questions for EPA regarding this letter or the Site should be directed to Wallace Reid, 206-553-1728, or Chip Humphrey, 503-326-2678.

Sincerely,



Michael F. Gearheard
Director, Office of Environmental Cleanup

Enclosure: Recipient List

cc: Mike Rosen, DEQ
Robert Phillip, 3200 NW Yeon Street, Portland, OR 97210

Portland Harbor Initial General Notice List

December 5, 2000

T-470 P.005/006 F-218

5032982

ER STEEL

Dec-20-2000 04:06pm From:SC

Company Name	Contact	Contact Address			
1 ACF Industries	Richard Iiyink	620 North Second Street	St. Charles	MO	57883
2 Adler Creek Lumber Company	Ronald Prestwood	P.O. Box 83237	Portland	OR	97046
3 ARCO	Ralph Moran	4 Center Point Drive, Suite 179	La Palma	CA	90623
4 Alufina Chemicals		6400 NW Front	Portland	OR	95778
5 Babcock Land Company	George Webb	9933 NW 107th Avenue	Portland	OR	97231-
6 BNRH	Matthew Rose	2650 Lambley Dr.	Ft. Worth	TX	76131
7 Brix Maritime		9030 NW St Helens	Portland	OR	97231
8 Calbag Metals	Warren Rosenfeld, Pres.	2495 NW Nicolai St	Portland	OR	95398
9 Cascade General Inc.	Akin Spruit	5555 N. Channel	Portland	OR	97217
10 Christenson Oil		3747 N Sulfite Rd	Portland	OR	97217
11 City of Portland Outfalls	Al Smith	1211 SW 5th Ave., Room 800	Portland	OR	97204-
12 City of Portland Water Laboratory	Al Smith	1211 SW 5th Ave., Room 800	Portland	OR	97204-
13 Crawford Street Corp.	Robert Phillip	3200 NW Yeon Street	Portland	OR	97210-
14 Elf Atochem	Larry Patterson	6400 NW Front Ave	Portland	OR	85778
15 Equilon Enterprises LLC	Anthony Palagyl	10602 NE 38th Place	Kirkland	WA	98109
16 Foss Maritime	Larry Johnson	9030 NW St. Helens Road	Portland	OR	97231-
17 Fred Devine Diving and Salvage	J. (Nick) Leitz	6211 N. Knappa Street	Portland	OR	97217-
18 Freightliner Corporation	Hilton Synnk	4747 N. Channel Avenue	Portland	OR	97217-
19 Front Avenue LLP	Jay Zideh	3121 SW Moody Avenue	Portland	OR	97201-
20 GASCO (NW Natural)	Sandra Hart	220 NW 2nd Ave.	Portland	OR	97209
21 GATK Linton Terminal	Eric Conrad	1363 North Gaffey Street	San Pedro	CA	89408
22 Georgia Pacific - Linton	Steve Peirlin	900 SW Fifth Avenue	Portland	OR	95949
23 Goldendale Aluminum	Drew Wilcox	101 SW Main St #903	Portland	OR	97204
24 Gould Electronics, Inc. aka GA-TEK Inc.	James Cronmiller	35129 Curtis Blvd.	Eastlake	OH	89408
25 Great Western Chemical Co.	Robert H. McCall	808 S.W. 15th Avenue	Portland	OR	95298
26 GS Roofing Products (Gensint)		6350 NW Front Ave	Portland	OR	97210
27 Gunderson	Robert A. Bridgers	4350 NW Front Ave	Portland	OR	97210
28 Hendren Tow Boat Co.	Floyd G. Hendren	12751 NW Springfield Rd	Portland	OR	97129
29 Jefferson Smurfit	Heldi Reed	P.O. Box 86959	Portland	OR	97283-
30 Koppers Industries, Inc.	Ames S. Kannerer	7540 NW St. Helens Road	Portland	OR	97210
31 Lakeside Industries	Charles Gaskill	4850 NW Front Avenue	Portland	OR	95954
32 Linton Oil Fire Training Grounds	Al Smith, City of Port.	1211 SW 5th Ave. Rm #1100	Portland	OR	97204
33 Linton Plywood Association	Jim Stahley	10504 NW St. Helens Road	Portland	OR	97231-
34 Mar Com Marine	Tom Maples	9070 North Bradford St.	Portland	OR	97203-
35 Marine Finance Corporation	Steve Andrews	8444 NW St. Helens Road	Portland	OR	97231-
36 Marine Salvage Consortium Inc		6211 N Knappa	Portland	OR	97217
37 McCall Oil and Great Western Chemical	Lee Zimmerman	808 SW 15th Avenue	Portland	OR	97205-
38 McCormick & Baxter		PO Box 3344	Portland	OR	97208
39 Mobil Oil aka Socony Mobil Company Inc.	C.A. Fouché	2063 Main Street PMB 501	Oakland	CA	94661

CRAW000000088

December 5, 2000

Dec-20-2000 04:07 PM

Portland	OR	97231
Portland	OR	97134
Portland	OR	97209
Bakersfield	CA	93309
Portland	OR	97208
Toledo	OH	43659
Portland	OR	97208
Portland	OR	97204
Research Triangle Park	NC	22709
Portland	OR	97201
Portland	OR	97231
Chicago	IL	60532
Portland	OR	97249
Portland	OR	96972
Portland	OR	97217
Kirkland	WA	98109
Seattle	WA	98199
Seattle	WA	97677
Portland	OR	97201
Portland	OR	97210
Omaha	NE	68179
Oakland	CA	89269
Portland	OR	97210
Portland	OR	97083
Portland	OR	97232
San Ramon	CA	89379
San Pedro	CA	90731
Lake Forest	CA	92630
Portland	OR	97210
Brea	CA	92823

COPY

Black Sand Removal Action Work Plan

Crawford Street Site Portland, Oregon

Prepared for
Crawford Street Corporation

October 5, 2001

RECEIVED
STOEL RIVES LLP
By Ch 8/18/02



CONTENTS

Text

INTRODUCTION AND PROJECT BACKGROUND	1
1.1 Site and Project Description.....	1
1.2 Nature and Extent of Black Sand.....	2
BLACK SAND REMOVAL ACTIVITIES.....	4
2.1 Pre Construction Permitting and Reviews	4
2.2 Black Sand Removal Activities	4
2.3 Site Control Measures	8
2.4 Health and Safety	10
2.5 Waiver of State and Local Permits.....	10
DOCUMENTATION OF REMOVAL ACTIVITIES	13
3.1 Removal Action Field QA/QC Activities	13
3.2 Field Documentation	13
3.3 Report	14
ROLES AND RESPONSIBILITIES OF REMOVAL ACTION TEAM	16
4.1 Crawford Street Corporation	16
4.2 Bridgewater Group.....	16
4.3 Oregon Department of Environmental Quality	16
4.4 Removal Action Environmental Contractor	17
PROJECT SCHEDULE	18

Tables

Table 1-1	Detected Chemical Concentrations in Black Sand – Petroleum Hydrocarbons
Table 1-2	Detected Chemical Concentrations in Black Sand – PAHs and PCBs
Table 1-3	Detected Chemical Concentrations in Black Sand – Total Metals
Table 1-4	Detected Chemical Concentrations in Black Sand – TCLP Metals

Figures

Figure 1-1	Site Location Map
Figure 1-2	Site Plan
Figure 1-3	Black Sand Removal Areas
Figure 1-4	Cross Section A-A'

Appendices

Appendix A	DEQ Letter Requesting Black Sand Removal Action
------------	---

SECTION 1

INTRODUCTION AND PROJECT BACKGROUND

This Black Sand Removal Action Work Plan (Work Plan) presents the procedures and processes that will be used to perform the black sand removal action at the Crawford Street site in Portland, Oregon (Figure 1-1).

This Work Plan has been prepared under the oversight of the Oregon Department of Environmental Quality (DEQ).

1.1 Site and Project Description

1.1.1 Site Description

The Crawford Street site is located between North Burlington and North Richmond Streets in north Portland and is bordered by North Crawford Street and the Willamette River (Figure 1-2). The portion of the overall site where the black sand removal work will occur (i.e. the "Site") is in the southwest corner of the Crawford Street site, near the Willamette River. The Site includes an area on the beach of the Willamette River and along the top edge of the bank, above the beach. The Site is currently vacant except for a chain-link fence located along the top of the bank.

The beach portion of the Site is unvegetated sand with scattered woody debris (i.e. logs, sticks) and concrete debris. Scattered trees and shrubs are present along the slope and top of the bank. The beach lies below the typical water level and is typically submerged.

Ordinary high water (about elevation 16 ft NGVD) corresponds to the middle portion of the bank. The top of the bank is at about elevation 30 feet. The bank lies at an approximate 4H:3V slope at the Site. The Willamette River is currently at historically low levels. During high tide, the river level is at about elevation 4 ft (NGVD) and at low tide the river is at about 1 ft (NGVD). Figure 1-4 shows a typical cross section of the beach and adjacent bank.

1.1.2 Site History and Project Description

In October 1999, DEQ requested that Crawford Street Corporation (CSC) perform a Preliminary Assessment at the Crawford Street site. DEQ further requested that the PA include soil and groundwater sampling and analysis. The PA was completed and soil and groundwater samples were collected and analyzed in early 2001.

The results of the PA sampling and analysis indicated elevated concentrations of hazardous substances in black sand found on the Site. In particular, black sand was found along a limited portion of the Willamette River beach and along the top of bank above the beach. DEQ determined that possible releases of hazardous substances from the black sand in these areas could potentially migrate to the Willamette River and pose a threat to ecological receptors in the river.

On August 28, 2001, DEQ issued a letter to CSC requesting that CSC remove the black sand from the beach and from along the top of the adjacent bank to prevent potential future migration of hazardous substances from the black sand to the river. A copy of the letter is provided in Appendix A of this Work Plan. Bridgewater Group, on behalf of CSC prepared this Work Plan to guide the black sand removal action work.

1.2 Nature and Extent of Black Sand

1.2.1 Extent of Black Sand

Black sand is visually apparent on the ground surface in two areas of the Site; along an approximate 150-foot length of beach and along an approximate 150-foot length of the top edge of the bank above the beach area. Figure 1-3 shows the extent of the black sand in these two areas of the Site. The depth of the black sand in these two areas is about 1 to 2 feet. Figure 1-4 shows a schematic cross-section of the Site with the location and relative elevation of the black sand areas.

The black sand on the beach is at an elevation of about 6 feet. This elevation is well below the typical water level but is above the current, historically low, river level.

1.2.2 Chemical Analysis of Black Sand Samples

Samples of the black sand have been collected from along the beach and the bank. The samples have been analyzed for:

- Petroleum hydrocarbons
- Polycyclic aromatic hydrocarbons (PAHs)
- Polychlorinated biphenyls (PCBs)
- Total metals
- TCLP metals

Tables 1-1, 1-2, 1-3, and 1-4 present the results of the chemical analyses of the black sand. As shown on Tables 1-2 and 1-3, concentrations of PAHs, PCBs, and metals (nickel, copper, zinc, lead, and chromium) greater than ecological screening concentrations (i.e. McDonald

Consensus Threshold Effects Concentrations [TECs] or NOAA TELs) have been measured in the black sand.

TCLP lead concentrations in a few of the black sand samples were measured to be greater than 5 mg/l. As a result, excavated black sand is a characteristic hazardous waste and is subject to hazardous waste management requirements.

SECTION 2

BLACK SAND REMOVAL ACTIVITIES

This section describes the specific tasks that will be performed to complete the black sand removal action work.

2.1 Pre Construction Permitting and Reviews

Several permits and government agency reviews are required before the field activities can be initiated. As described in Section 2.5, most of these permits are waived under the DEQ cleanup statute. However, a permit is required from the U.S. Army Corps of Engineers (COE).

A City of Portland Greenway Review is also required from the City of Portland planning department. The City has indicated that they will issue an emergency approval of the work to be done on the beach. They have further indicated that a more formal review will be necessary for the work to be performed on the bank.

All necessary permits and reviews will be obtained and completed prior to starting the removal action field work.

Current Oregon DEQ regulations require that construction projects that disturb five or more acres are subject to an NPDES Stormwater Discharge General Permit # 1200-C. The area of the removal action is less than 5 acres. Thus, an NPDES permit is not required for the black sand removal work.

It is our understanding that DEQ will issue a public notice prior to starting the removal action.

2.2 Black Sand Removal Activities

2.2.1 Contractor Mobilization

The contractor will mobilize the necessary equipment to the site. Necessary equipment is anticipated to include:

- Track-hoe excavator or backhoe
- Front end loader
- High capacity vacuum truck
- Small dump truck
- Water truck
- Support vehicles and equipment

The contractor will also mobilize temporary toilet facilities to the site.

2.2.2 Site Layout

The contractor will temporarily remove the existing fence, as necessary to facilitate the soil excavation, hauling, and grading work. The fencing materials may be saved and reused to reconstruct the fence at the conclusion of the removal work. The contractor will establish the exclusion zone as described in Section 2.3.1 prior to starting the removal work.

The black sand removal areas will be marked in the field prior to the start of the initial excavations. The contractor will locate buried utilities in the project area prior to starting the excavation work.

2.2.3 Remove Black Sand from Beach

The area of the black sand that will be removed from the beach is shown in Figure 1-3. The black sand will be removed from the beach area using a high-capacity vacuum truck. The truck will be parked along the top of the bank, above the beach removal area. No large equipment will be placed on the beach.

The nominal 6-inch diameter vacuum hose will be extended down the bank to the beach. Two workers will manually move the end of the hose around the beach removal area, sucking the black sand up the hose and into the truck.

The workers will remove the black sand from around and beneath the large debris present on the beach as practicable with the vacuum hose. Large wood and concrete debris will not be moved. The workers will not disturb the limited vegetation that is present in the black sand area on the beach. The workers will not remove beach material closer to the water than the limits of the black sand area shown on Figure 2. Although the workers may walk in the area between the removal area and the water, no major removal activities will occur in this area.

Based on the beach area shown in Figure 1-3 and the apparent black sand depth of about 1 to 2 feet, a total of about 150 cubic yards of black sand are anticipated to be removed from the beach area. This estimated volume includes some contingency for additional black sand discovered beyond the boundaries shown in Figure 1-3.

2.2.4 Remove Black Sand from Edge of Bank

Black sand present along the edge of the top of the bank will be removed to prevent future possible sloughing during possible future high water conditions. The area of the bank edge removal is shown in Figure 1-3. The black sand will be removed back from the bank edge a minimum distance of 10 feet. The material will be removed using either a high-capacity vacuum truck or an excavator. Approximately 150 cubic yards of black sand are anticipated to be removed from the bank edge.

Small vegetation and debris present in the bank edge black sand area will be removed as necessary prior to starting the excavation work. Large trees will not be removed.

2.2.5 Temporary Stockpile Excavated Black Sand

The removed black sand will be hauled from the top of the bank and placed in temporary stockpiles located in the area shown on Figure 1-2. The material will be stored in the stockpiles until final disposition of the black sand is determined. The stockpile will be constructed, managed, and closed in accordance with the requirements presented in Section 2.5.1.

A hazardous waste determination will be performed on the black sand stockpiled on-site in accordance with OAR 340-102-011, 40 CFR 261, and US EPA SW-846 Test Methods for Evaluating Solid Waste. One discrete sample per 50 cubic yards of black sand will be collected. The samples will be analyzed for TCLP lead. The sampling will be conducted within seven days after the excavated black sand is stockpiled.

The final disposition of the stockpiled black sand will be determined within 90 days of being placed in the stockpile. Specific options that will be considered depend on whether the stockpiled black sand is designated as hazardous waste and include the following:

- On-site stabilization to applicable land ban treatment standards and placement on site.
- On-site stabilization to applicable land ban treatment standards and offsite disposal in a Subtitle D solid waste landfill.
- Offsite hauling to a hazardous waste treatment facility for offsite treatment and disposal.
- Offsite hauling to a non-hazardous solid waste facility for offsite disposal.
- Placement on site without stabilization.

Crawford Street will work with DEQ to determine the most appropriate disposition of the black sand material.

2.2.6 Post-Removal Sampling and Analysis

Soil samples will be collected from the bottom and sidewalls of the black sand removal excavations to assess the effectiveness of the removal action.

One sidewall soil sample will be collected every 20 feet of excavation perimeter. Each sidewall surface soil sample will be collected by compositing a minimum of three subsamples from representative sublengths along the perimeter sampling length. The subsamples will be collected from across the depth of the excavation. If discrete zones of soil with field evidence indicating significantly greater contamination than

surrounding soil are observed around the excavation perimeter, sidewall soil samples will also be collected from the observed area.

One excavation bottom sample will be collected for every 400 square feet of excavation bottom area. Each bottom sample will be collected from its associated bottom area by compositing a minimum of five subsamples from representative subareas within the bottom sampling area.

The post removal soil samples will be analyzed for the following:

- PAHs using EPA Method 8310 or 8270SIM.
- PCBs using EPA Method 8082.
- Total nickel, zinc, chromium, copper, mercury, and lead using EPA Method 6000/7000 series.
- Petroleum hydrocarbons using NW-TPH HCID methods with follow-up quantification of gasoline, diesel, and heavy oil.

If concentrations of lead are measured in excess of 100 mg/kg, the samples will be analyzed for TCLP lead by EPA Method 1311/601.

The samples will be collected with clean sampling equipment using standard environmental sampling protocols. Sample chain of custody will be maintained at all times and samples will be transported to the analytical laboratory daily.

The laboratory analyses will be performed on a rapid turnaround and the appropriateness of additional removal work will be assessed and discussed with DEQ.

2.2.7 Backfill and Revegetate Removal Areas

2.2.7.1 Beach Removal Area

The beach removal area will not be backfilled. The edges of the removal area will be hand graded to prevent tripping hazards until the river levels rise to normal levels above the beach removal area.

2.2.7.2 Bank Edge Removal Area

Clean, import backfill will be placed in the bank edge removal area after the black sand has been removed. The backfill will be graded to discourage surface water runoff from the uplands down the bank.

Representative samples of the import material will be collected at a frequency of one sample for every 100 yards of material, and will be analyzed for petroleum hydrocarbons, PCBs, and metals to confirm the lack of elevated concentrations of hazardous substances.

Once the bank edge area has been backfilled, the disturbed removal area will be revegetated with native plant species including alder and ash trees and native grasses. Straw bales, long-term silt fencing, and seed mat will

be used as necessary to prevent soil erosion while vegetation is being established.

2.2.8 Contractor Demobilization

At the conclusion of the field activities, the contractor will demobilize all equipment and supplies from the site. Equipment used in the exclusion zone will be decontaminated in accordance with the procedures discussed in Section 2.3.2 prior to demobilization. All wastes, trash, and construction materials will be removed.

2.3 Site Control Measures

Several site control measures will be implemented during the field activities to prevent impacts to nearby areas and workers.

2.3.1 Pollution and Erosion Controls

The following control measures will be implemented to prevent impacts to the Willamette River and other surrounding areas. These erosion and sediment control features will remain in place until the bank edge is sufficiently vegetated such that erosion will not occur under typical rainfall events.

Methods to Prevent Erosion and Sedimentation

- A silt fence will be placed along river between the waterline and the beach removal area.
- Work will be performed during dry weather conditions to prevent surface water runoff to river.
- Stockpiles will be lined, bermed, and covered to prevent run-on and runoff.
- The work will be performed during low tide conditions, as practicable, to reduce the potential for run off to the river.
- Disturbance of vegetation along the top of bank will be minimized and only as necessary to remove black sand.
- No heavy equipment will be used on the beach.
- The onsite truck haul routes (e.g. from the bank edge to the stockpile area) will be watered as necessary to prevent visible dust. Watering will be limited to prevent ponding or runoff of water. Trucks will be loaded in a manner that prevents spillage.
- Disturbed bank edge area will be revegetated with native plant species including alder and ash trees and native grasses. Straw bales, long-term silt fencing, and seed mat will be used as necessary to prevent soil erosion while vegetation is being established.

- Based on the type and concentrations of hazardous substances in the black sand, odor control is not anticipated to be necessary.

Methods to Confine and Remove Excess Concrete

- No concrete or asphalt placement is being performed as part of the project.

Hazardous Products Used

- No hazardous products will be used in the beach removal area.
- Other than fuel contained in vehicle and equipment fuel tanks, no hazardous products will be used on the bank above the beach. Equipment will be inspected daily for evidence of drips or spills.
- Oil and grease will be cleaned from the exterior surfaces of vehicles or equipment to be used on the bank above the beach.
- No equipment or vehicle refueling will be conducted within 150 feet of the bank.

Spill Containment and Control Plan

- Any spills of hazardous substances from the equipment will be immediately cleaned up and runoff from the spill area prevented until the cleanup is completed.
- Equipment will be inspected daily for evidence of drips or spills.
- A spill cleanup kit will be maintained on site during the removal work.

Measures to Prevent Construction Debris from Falling into Aquatic Habitat

- No removal activities will be allowed within 20 feet of waterline.
- Woody debris will not be removed from the bank or beach.

2.3.2 Personnel and Equipment Decontamination

An exclusion zone will be established around the removal areas, the onsite haul routes, and the temporary stockpile areas. Excavation equipment and personnel will be allowed to freely move within the exclusion zones without decontamination. The equipment will be allowed to move between separate exclusion zones with decontamination consisting of brooming of loose soil and removal of significant quantities of adhered soil with hand tools.

Any equipment exiting the exclusion zone and leaving the site will be washed as necessary to remove all contaminated soil. A temporary decontamination area will be constructed inside the exclusion zone to contain these activities. Decontamination fluids will be collected and properly disposed.

Personnel exiting the exclusion zone will decontaminate themselves according to the decontamination procedures specified in the health and safety plan.

2.3.3 Black Sand Stockpile

Black sand stockpiles will be constructed and maintained in accordance with the following:

- The stockpiles will be placed on a minimum 12-mil-thick plastic to prevent contact between the stockpiled material and the underlying existing ground surface. The existing ground surface will be cleared of debris and sharp objects prior to the liner being placed.
- The stockpiles will be bermed and covered to prevent run-on and runoff and to prevent wind erosion.
- The stockpile areas will be fenced with a temporary fence to discourage unauthorized access to the stockpiles.

Once the final disposition of the black sand is determined, the stockpiles will be closed by removing all stockpiled material and the underlying liner. Soil sampling and analysis will be performed as necessary after the stockpile has been removed, to confirm that no releases from the stockpile occurred.

2.3.4 Site Security

Site security will be provided by a combination of the existing fence and an additional, temporary fence around exclusion areas. Security around the temporary stockpiles will be provided by the temporary fence.

2.4 Health and Safety

CSC will develop a health and safety plan for its employees and subcontractors. The contractor will be required to develop a separate health and safety plan for its employees. The contractor will submit their health and safety plan to CSC for review along with records that demonstrate that its onsite personnel have current appropriate training. The contractor will be responsible for the overall health and safety at the site.

2.5 Waiver of State and Local Permits

The Oregon Cleanup Law statute provides a waiver for state and local permits that would otherwise be necessary to performed a removal action or remedial action approved by DEQ. The substantive requirements of the permit must be met but the procedural requirements are waived. This section describes the specific permits that being waived for the black

sand removal work and the practices and procedures that will be implemented to meet the substantive requirements of those permits.

2.5.1 Hazardous Waste Storage Permit

The excavated black sand is anticipated to have TCLP lead concentrations greater than 5 mg/L. As a result, the excavated material will likely be a hazardous waste and subject to hazardous waste management standards. It is not anticipated that the stockpiled black sand will remain on the site for more than 90 days. However, in the unlikely event that the stockpiled black sand does remain on the site for greater than 90 days, the stockpiled sand would be considered a hazardous waste pile and subject to the substantive technical requirements for hazardous waste piles presented in 40CFR 265.250.

Section 2.3.3 describes how the black sand stockpiles will be constructed, managed, and closed. The procedures described in Section 2.3.3 meet the substantive requirements of 40CFR 265.250.

2.5.2 COE and Oregon State Division of State Lands Removal/Fill Permit

The black sand on the beach is below the ordinary high water line of the Willamette River and, thus, excavation work in this area is subject to U.S. Army Corps of Engineers (COE) and Oregon State Division of State Lands (DSL) fill and removal permits.

COE Permit

The COE permit is not waived under the DEQ statute because it is a federal permit. Crawford Street Corporation is obtaining the necessary permit from the COE.

The black sand removal work is anticipated to fall under the COE Nationwide Permit 38 for cleanup actions. A Pollution and Erosion Control Plan has been prepared and submitted to the COE as part of the programmatic ESA consultation documentation required under the Nationwide Permit 38.

The controls described in Section 2.3.1 meet the requirements of Reasonable and Prudent Measures #16 for all construction activities as described in the biological opinion for the National Marine Fisheries Service programmatic consultation for the Nationwide Permit 38.

DSL Permit

The DSL permit is a state permit and is waived under the DEQ cleanup statute. The controls described in Section 2.3.1 meet the substantive requirements of the DSL permit.

2.5.3 City of Portland Fill and Grading Permit

The City of Portland requires a fill and grading permit for placement or excavation of more than 50 cubic yards of soil. Thus, the removal of the

black sand is subject to the substantive requirements of the City fill and grading permit.

The erosion control procedures and other site controls described in Section 2 meet the substantive requirements of the City fill and grading permit.

DOCUMENTATION OF REMOVAL ACTIVITIES

3.1 Removal Action Field QA/QC Activities

CSC will perform a field QA/QC program to ensure that the removal action field work is performed in accordance with this Work Plan. A soil sampling and analysis program will be implemented to assess the effectiveness of the removal action.

The specific removal action field QA/QC activities include the following:

- Sampling and analysis of excavation sidewalls and floors.
- Sampling and analysis of import backfill material (one sample per each 100 cubic yard of import soil).
- Field duplicate sampling and analysis on a 5 percent basis.
- Sampling as necessary to demonstrate that releases have not occurred from the black sand stockpiles.
- Laboratory QA/QC, including duplicate, spikes, spike duplicates, and surrogate analyses.

These activities provide adequate assessment of the removal action work.

All site features that protect against hazardous substance releases will be inspected daily during the field removal work. These are:

- Erosion and sediment control features, including berms and silt fences.
- Fences and gates.
- Stockpile covers and visible portion of bottom liners.

These daily inspections will be documented in the daily notes maintained by the CSC field representative. Actions to correct any identified deficiencies also will be documented in the field notebooks.

3.2 Field Documentation

CSC field representatives will use a project notebook to record pertinent field information and describe sampling procedures. Entries will be sufficiently detailed to allow reconstruction of the sampling events. The following site activity information will be recorded in the project notebook:

- Time of arrival and departure from the site.

- Project personnel and subcontractor personnel onsite.
- Equipment calibration records.
- All sample locations, designations, and information.
- Health and safety monitoring records.
- Contractor pay and time quantities; downtime; and equipment breakage.
- Equipment present and equipment used.
- Visitor names, association, and purpose of visit.

Sampling locations, sampling procedures and significant findings will be photographed. Each photograph will be logged in a project notebook.

3.3 Report

At the conclusion of the removal action field activities, CSC will prepare a black sand removal action report that summarizes and documents the removal action field activities. The report will include:

- Figures showing the final lateral and vertical extent of all black sand excavations.
- Total in-place volume of soil removed from the beach and from the edge of the bank.
- Figures and tables showing the results of all sampling and analysis performed during the removal action.
- Descriptions of the specific field activities and conditions including onsite material management, excavation conditions, unusual or unanticipated conditions or events.
- The results of the hazardous waste determination of the stockpiled black sand.
- Description and documentation (e.g. waste manifests) of the final disposition of the black sand, if such disposition occurs prior to submittal of the report.
- Description and documentation (e.g. sample results) of the black sand stockpile closure, if such closure occurs prior to submittal of the report.
- Copies of daily reports and other field documentation.
- Copies of analytical laboratory reports.
- Representative photographs showing the site mobilization, black sand removal, temporary stockpile preparation, site rehabilitation, and sampling activities.

A draft report will be prepared for DEQ review. Upon receipt of DEQ's comments, a final removal action report will be prepared.

If the final disposition of the stockpiled black sand has not been determined when the report is finalized, a separate report presenting the final black sand disposition will be prepared and submitted to DEQ.

SECTION 4

ROLES AND RESPONSIBILITIES OF REMOVAL ACTION TEAM

The black sand removal action team consists of the following primary parties:

- Crawford Street Corporation
- Bridgewater Group
- Oregon Department of Environmental Quality
- Removal Action Environmental Contractor

Each of these team member's roles and responsibilities are described below.

4.1 Crawford Street Corporation

Crawford Street Corporation (CSC) is the owner of the site and the party performing the removal action. CSC is responsible for providing access to the site. CSC will be considered the generator of all wastes generated during the removal action. Mat Cusma (503-286-6944), an environmental associate with CSC, is the project coordinator for CSC and will be the primary administrative contact with DEQ during the removal action.

4.2 Bridgewater Group

Bridgewater Group is the CSC environmental consultant for the black sand removal action project. Bridgewater Group is responsible for performing the technical analyses, preparing all plans and reports, documenting the removal action activities, performing construction QA/QC, and performing required sampling and analysis. Ross Rieke (503-675-5252) is the project manager for Bridgewater Group and will be the primary technical contact with DEQ during the removal action.

4.3 Oregon Department of Environmental Quality

DEQ will provide review and comment during the black sand removal action project. In particular, DEQ will review and approve the removal action work plan and the removal action report and will provide oversight during the field activities. DEQ will be responsible for performing the public involvement program for the removal action and will be the primary point of contact for the public during the removal action. All inquiries from

the public will be directed to DEQ. Tom Gainer (503-229-5326) is the project manager for DEQ.

4.4 Removal Action Environmental Contractor

The black sand removal action environmental contractor (contractor) will be responsible for performing all field construction activities. These activities will include soil excavation, onsite management, grading, loading, and hauling. The contractor will also be responsible for implementation of site controls and site safety during the field construction work. The contractor will contract directly with CSC.

SECTION 5

PROJECT SCHEDULE

The overall black sand removal action field work is anticipated to require about 2 to 3 days, including mobilization, stockpile area preparation, and demobilization. The removal action in the beach area is anticipated to be completed in less than one day.

The field work is anticipated to begin in mid October, before the river level begins to rise. The field activities will be performed only during the hours of 7AM to 7PM.

The draft report will be submitted within 45 days of the completion of the field activities.

As noted in Section 2.2.5, the final disposition of the stockpiled black sand will be determined within 90 days of placement of the material in the stockpile.

The City of Portland has indicated that the greenway review process for the bank area will likely not be completed prior to the expected rise in the Willamette River this fall. If this is the case, the black sand will be removed from the beach and stockpiled on site as described in this Work Plan without waiting for the greenway review process for the upland black sand. The upland black sand would then be removed later, and using methods appropriate for the conditions at the time of removal, once the greenway review is completed.

Tables



CRAW00000154

Table 1-1
Detected Chemical Concentrations in Black Sand
Petroleum Hydrocarbons
Crawford Street
All results in mg/kg

Sample	Location	Date	Sample Depth (ft)	Gasoline	Diesel	Heavy oil
SS-05	Black sand - shoreline	4/24/2001	0.5	4 U	25 U	50 U
SS-10	Black sand - bank	4/26/2001	2.0	4 U	78.3	180
SS-08	Pipe outfall (black sand area)	4/24/2001	0.5	4 U	25 U	194
BS-1A	Black sand - shoreline	6/22/2001	0.5	NA	NA	NA
BS-1B	Black sand - shoreline	6/22/2001	0.5	NA	NA	NA
BS-1C	Black sand - shoreline	6/22/2001	0.5	NA	NA	NA
BS-1D	Black sand - shoreline	6/22/2001	0.5	NA	NA	NA
CS-1	Black sand - shoreline	7/17/2001	0.5	NA	NA	NA
CS-2	Black sand - shoreline	7/17/2001	0.5	NA	NA	NA
CS-3	Black sand - shoreline	7/17/2001	0.5	NA	NA	NA
CS-4	Black sand - shoreline	7/17/2001	0.5	NA	NA	NA

U - Not detected at noted reporting limit
NA - Not analyzed

Table 1-2
Detected Chemical Concentrations in Black Sand
PAHs and PCBs
Crawford Street
All results in mg/kg

Sample	Location	Date	Sample Depth (ft)	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indene(1,2,3-cd)ip	Naphthalene	Phenanthrene	Pyrene	LPAs	HPAs	Total PAHs	PCBs
SS-05	Black sand - shoreline	4/24/2001	0.5	0.067 U	0.067 U	0.067 U	0.0683	0.0628	0.0611	0.0742	0.072	0.08	0.067 U	0.144	0.067 U	0.067 U	0.067 U	0.168	0.127	0.168	0.901	1.089	0.224
SS-10	Black sand - bank	4/28/2001	2.0	0.096	0.87 U	0.192	0.488	0.768	0.728	0.573	0.682	0.63	0.168	0.927	0.100	0.515	0.067 U	0.856	0.742	1.048	8.233	7.279	1.11
SS-08	Pipe outfall (black sand area)	4/24/2001	0.5	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	NA	NA	NA	NA
BS-1A	Black sand - shoreline	6/22/2001	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BS-1B	Black sand - shoreline	6/22/2001	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BS-1C	Black sand - shoreline	6/22/2001	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BS-1D	Black sand - shoreline	6/22/2001	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CS-1	Black sand - shoreline	7/17/2001	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CS-2	Black sand - shoreline	7/17/2001	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CS-3	Black sand - shoreline	7/17/2001	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
McDonald Consensus TECs (sediment)						0.0572	0.108	0.15				0.17	0.033	0.423	0.077		0.178	0.204	0.195			1.61	
NOAA SQRT TEL							0.0317	0.0319				0.06		0.111				0.042	0.053				

U - Not detected at noted reporting limit
NA - Not analyzed

Table 1-3
Detected Chemical Concentrations in Black Sand
Metals
Crawford Street
All results in mg/kg

Sample	Location	Date	Sample Depth (ft)	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
SS-05	Black sand - shoreline	4/24/2001	0.5	NA	NA	NA	0.5 U	202	NA	65.3	0.1 U	NA	NA	NA	NA	NA
SS-10	Black sand - bank	4/26/2001	2.0	NA	NA	NA	0.5 U	174	NA	140	0.1 U	NA	NA	NA	NA	NA
SS-08	Pipe outfall (black sand area)	4/24/2001	0.5	0.5 U	5.65	0.5 U	0.5 U	69	170	45.6	0.167	29	0.503	0.5 U	0.5 U	178
BS-1A	Black sand - shoreline	6/22/2001	0.5	NA	NA	NA	NA	NA	NA	52.3	NA	NA	NA	NA	NA	NA
BS-1B	Black sand - shoreline	6/22/2001	0.5	NA	NA	NA	NA	NA	NA	58.9	NA	NA	NA	NA	NA	NA
BS-1C	Black sand - shoreline	6/22/2001	0.5	NA	NA	NA	NA	NA	NA	89	NA	NA	NA	NA	NA	NA
BS-1D	Black sand - shoreline	6/22/2001	0.5	NA	NA	NA	NA	NA	NA	558	NA	NA	NA	NA	NA	NA
CS-1	Black sand - shoreline	7/17/2001	0.5	NA	NA	NA	NA	NA	NA	42	NA	NA	NA	NA	NA	NA
CS-2	Black sand - shoreline	7/17/2001	0.5	NA	NA	NA	NA	NA	NA	28	NA	NA	NA	NA	NA	NA
CS-3	Black sand - shoreline	7/17/2001	0.5	NA	NA	NA	NA	NA	NA	2150	NA	NA	NA	NA	NA	NA
McDonald Consensus TECs (sediment)					9.79		0.99	43.4	31.6	35.8	0.18	22.7				121
NOAA SQRT TEL																

U - Not detected at noted reporting limit

NA - Not analyzed

Table 1-4
Detected Chemical Concentrations in Black Sand
TCLP Metals
Crawford Street
All results in mg/l

Sample	Location	Date	Sample Depth (ft)	TCLP Arsenic	TCLP Cadmium	TCLP Chromium	TCLP Copper	TCLP Lead	TCLP Mercury	TCLP Nickel	TCLP Zinc
SS-05	Black sand - shoreline	4/24/2001	0.5	NA	NA	0.5 U	NA	7.39	NA	NA	NA
SS-10	Black sand - bank	4/26/2001	2.0	NA	NA	0.5	NA	1.1	NA	NA	NA
SS-08	Pipe outfall (black sand area)	4/24/2001	0.5	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.0002 U	NA	1.45
BS-1A	Black sand - shoreline	6/22/2001	0.5	NA	NA	NA	NA	16.8	NA	NA	NA
BS-1B	Black sand - shoreline	6/22/2001	0.5	NA	NA	NA	NA	NA	NA	NA	NA
BS-1C	Black sand - shoreline	6/22/2001	0.5	NA	NA	NA	NA	NA	NA	NA	NA
BS-1D	Black sand - shoreline	6/22/2001	0.5	NA	NA	NA	NA	NA	NA	NA	NA
CS-1	Black sand - shoreline	7/17/2001	0.5	NA	NA	NA	NA	0.17	NA	NA	NA
CS-2	Black sand - shoreline	7/17/2001	0.5	NA	NA	NA	NA	0.3	NA	NA	NA
CS-3	Black sand - shoreline	7/17/2001	0.5	NA	NA	NA	NA	14.2	NA	NA	NA
CS-4	Black sand - shoreline	7/17/2001	0.5	NA	NA	NA	NA	0.23	NA	NA	NA

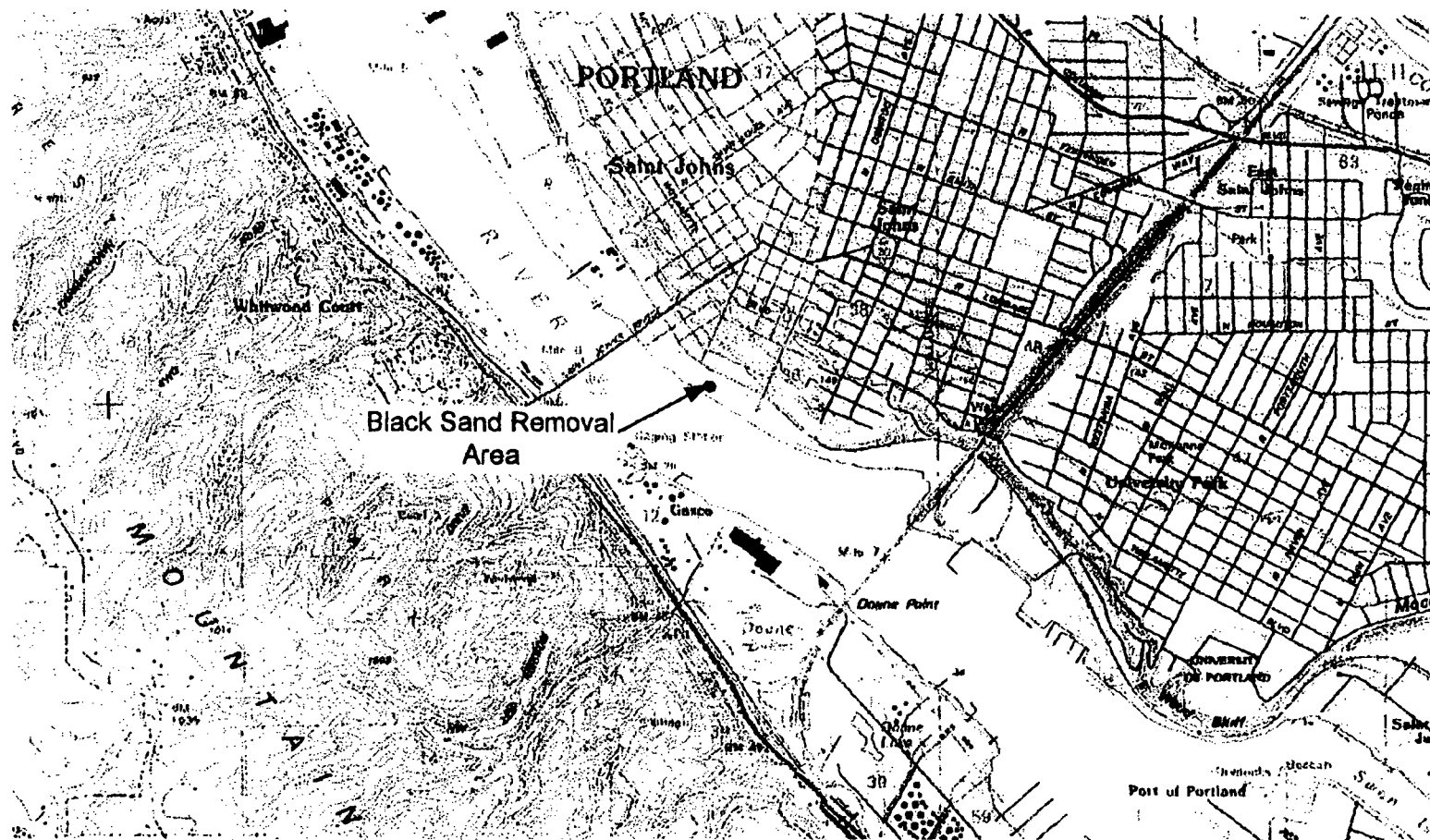
U - Not detected at noted reporting limit

NA - Not analyzed



Figures

TABLES



Black Sand Removal Area at
45° 35' 3" N and 122° 45' 25" W

Approximate Scale



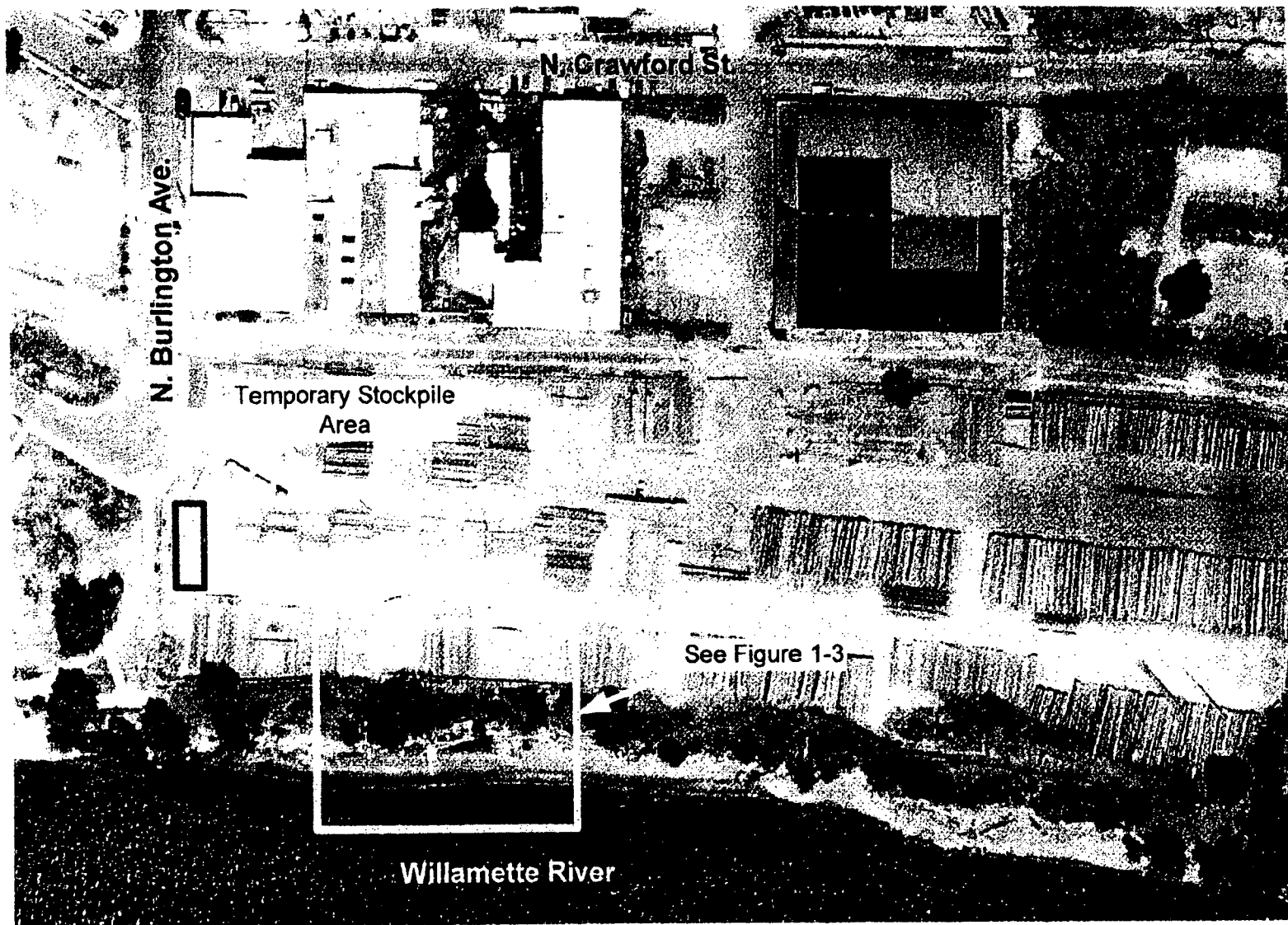
2400 feet

Figure 1-1

Site Location Map

Crawford Street Corporation Site

BRIDGEWATER GROUP, INC.



Approximate Scale

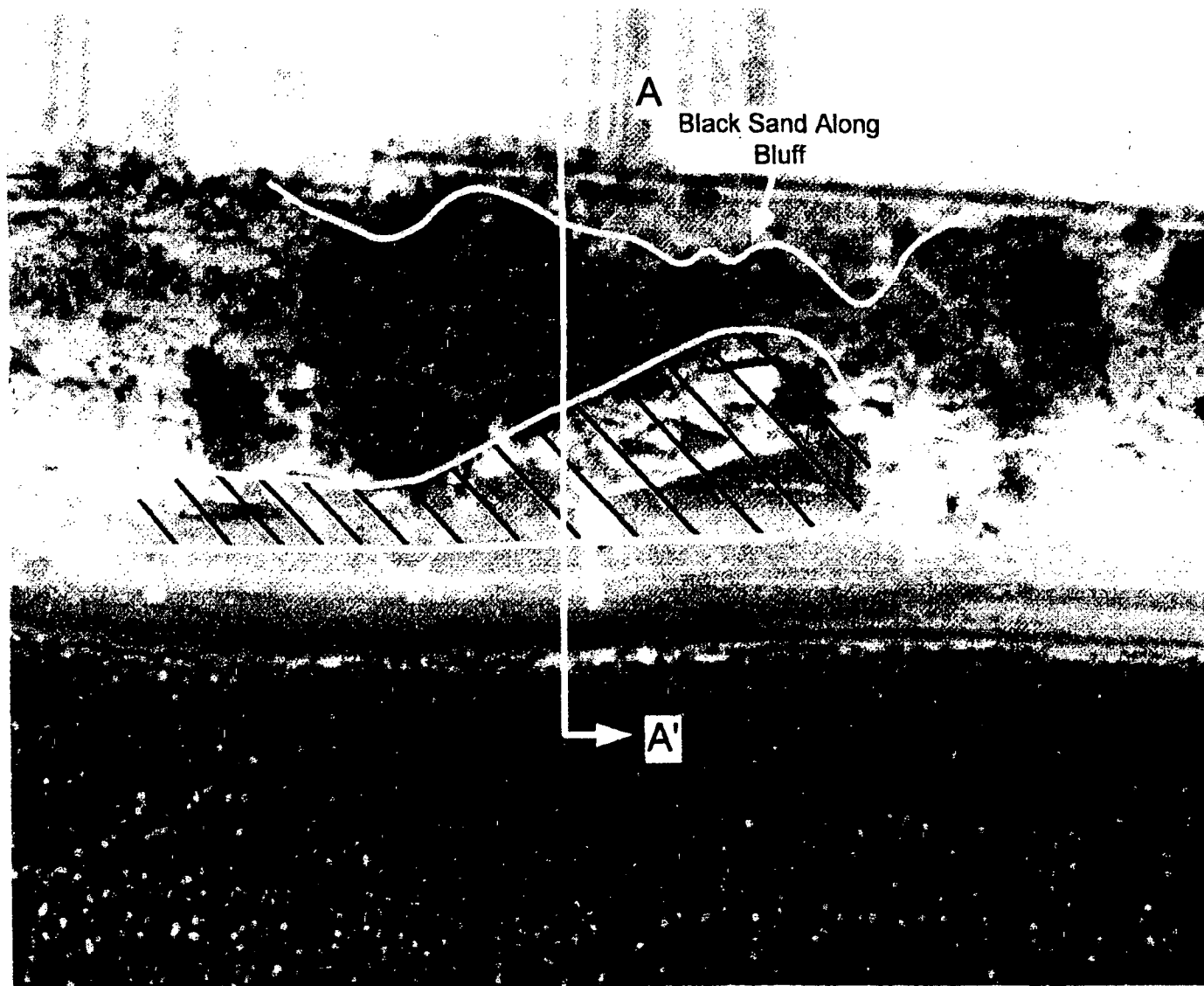
128 ft.

Figure 1-2

Site Plan

Crawford Street Corporation

BRIDGEWATER GROUP, INC.



Approximate Scale



30 feet

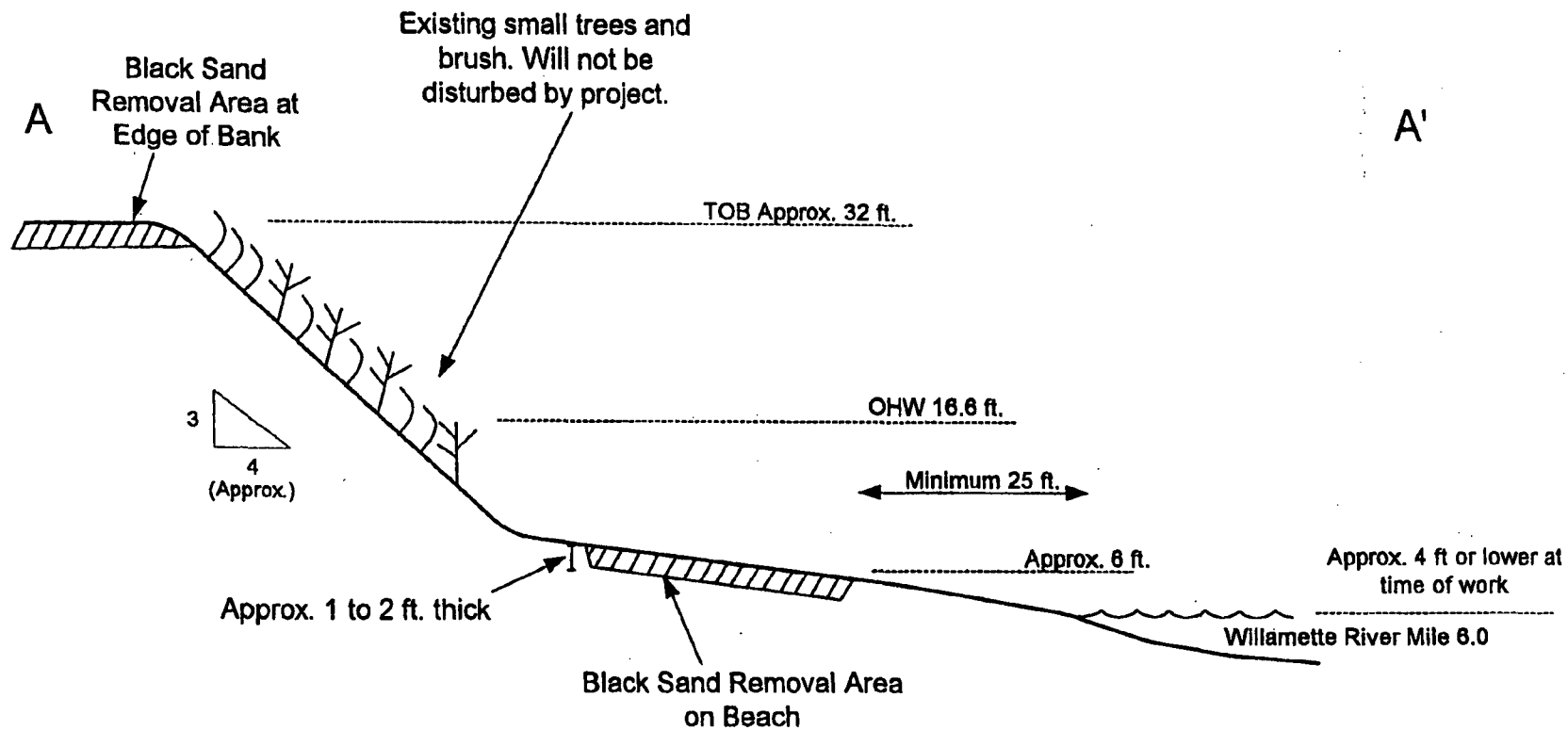


Black Sand Removal Area
Approximately 1.5 feet deep

Figure 1-3

Black Sand Removal Areas
Crawford Street Corporation

BRIDGEWATER GROUP, INC.



Note: Figure Not Drawn to Scale
Elevations Based on NGVD

Figure 1-4
Cross Section A-A'
Crawford Street Corporation

BRIDGEWATER GROUP, INC.

Appendix



CRAW00000164

APPENDIX A

**DEQ LETTER REQUESTING BLACK SAND
REMOVAL ACTION**

BRIDGEWATER GROUP, INC.

CRAW00000165



Oregon

John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
Northwest Region Portland Office
2020 SW 4th Avenue, Suite 4
Portland, OR 97201-49
(503) 229-5211
FAX (503) 229-6911
TTY (503) 229-5411

August 28, 2001

Matt Cusma
Schnitzer Steel Industries
P.O. Box 10047
Portland, Oregon 97296-0047

RE: Black Sand Removal
Crawford Street Corporation Site
8424 and 8524 N. Crawford Street, Portland, Oregon

Dear Mr. Cusma:

Thank you for submitting the Conceptual Plan (attached) for removal of the black sand contamination documented as part of the Expanded Preliminary Assessment (XPA) of the above-referenced site. Elevated levels of polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls, and chromium, lead, and zinc were observed in the black sand, and are considered hazardous substances per ORS 465.200. Black sand delineated on the beach and the "bluff (top of bank)" is susceptible to erosion into the Willamette River or may be submerged during higher water levels than currently exist.

Based on contaminant concentrations in the black sand, the Department of Environmental Quality (DEQ) has determined that contaminant migration to the Willamette River from the black sand on the subject site may pose a threat to human health and the environment and warrants removal action measures (i.e., source control) under OAR 340-122-070. As a result, DEQ requires that Crawford Street Corporation take necessary black sand removal actions as described in the conceptual plan to mitigate the unacceptable risk.

Please call me if you have questions.

Sincerely,

Tom Gainer, P.E.
Project Manager
Voluntary Cleanup/Portland Harbor

Attachment



CRAW00000166

Draft Outline – Crawford Street Black Sand Removal Work Plan

Placement Area Preparation

Designate placement area at steel storage pads in western portion of yard. Area of existing inferred upland black sand location.

Prepare upland area by moving steel and excavating 1 to 2 foot-deep pits. Excavate no deeper than existing black sand.

Stockpile clean gravel for subsequent reuse.

Bench test of stabilization mixture.

Remove Black Sand from Beach

Remove black sand from beach using high-capacity vacuum truck.

Estimated volume of 150 cubic yards based on 1.5 feet thick with contingency.

Remove as practical from beneath large debris. Avoid mobilizing large equipment necessary to move large debris on beach.

No backfill. Hand grade to remove tripping hazards.

Remove from Edge of Bank

Prevent future sloughing during high water.

Remove with vacuum truck or excavator.

Estimate about 150 cubic yards.

Remove small vegetation and debris as necessary before starting excavation. Avoid damaging trees.

Remove to north such that at least 10 feet from black sand to edge of bank and 1-foot cover over black sand.

Place cover of clean soil to bank edge. Sample import backfill material to ensure no contamination.

Vegetate soil cover with shrubs and small trees. Straw bales, long-term silt fencing, seed mat as necessary to ensure erosion control to river.

Placement and Sampling of Black Sand

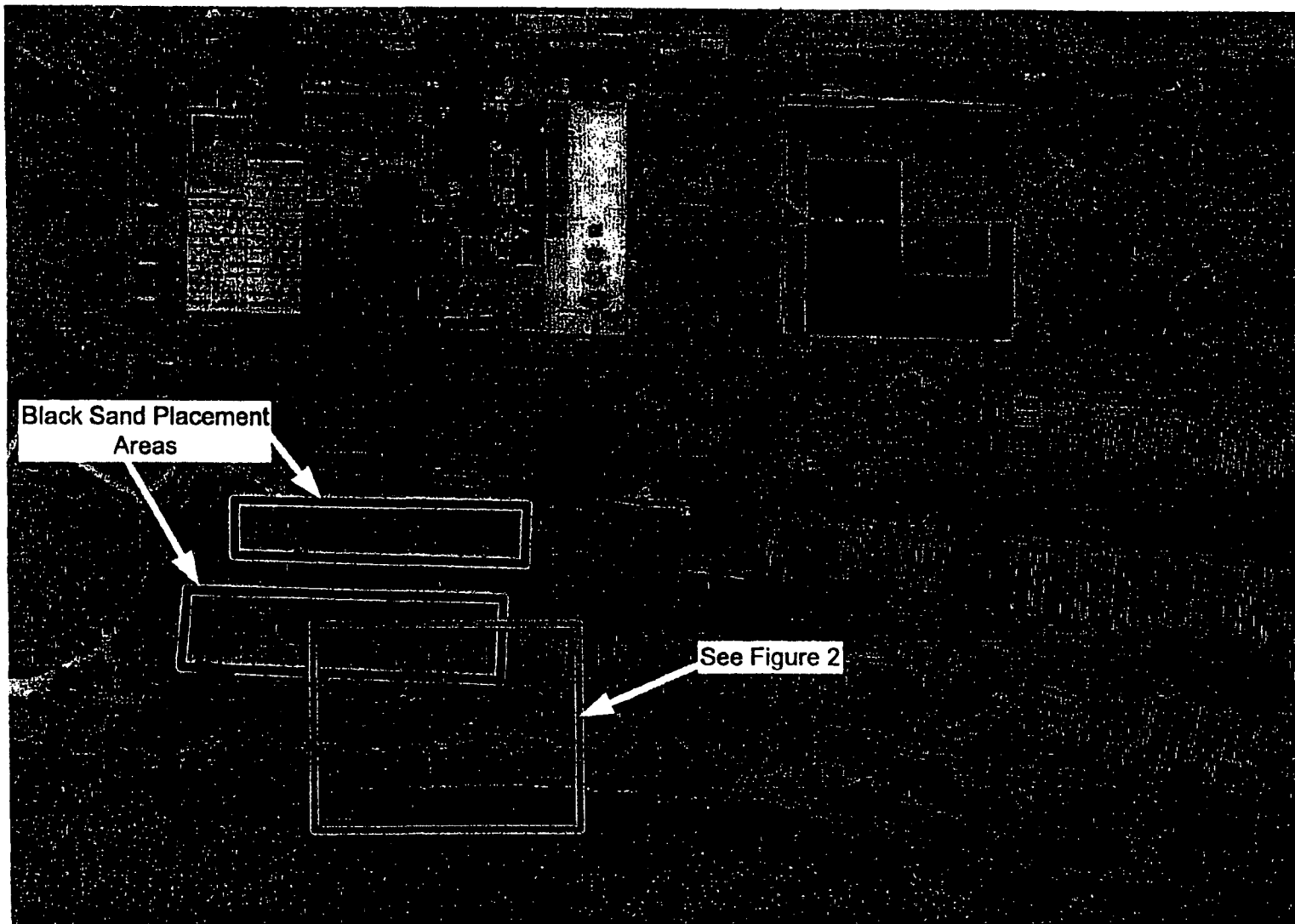
Spread black sand on upland pad area.

Stabilize with 10 to 15 percent Portland cement mixture.

Sample after stabilization to confirm protective of workers (PAHs, PCBs), protective of groundwater (TCLP metals), and below hazardous waste criteria (TCLP lead).

Place 1-ft cover of clean gravel over stabilized black sand.

Replace steel on pad areas.

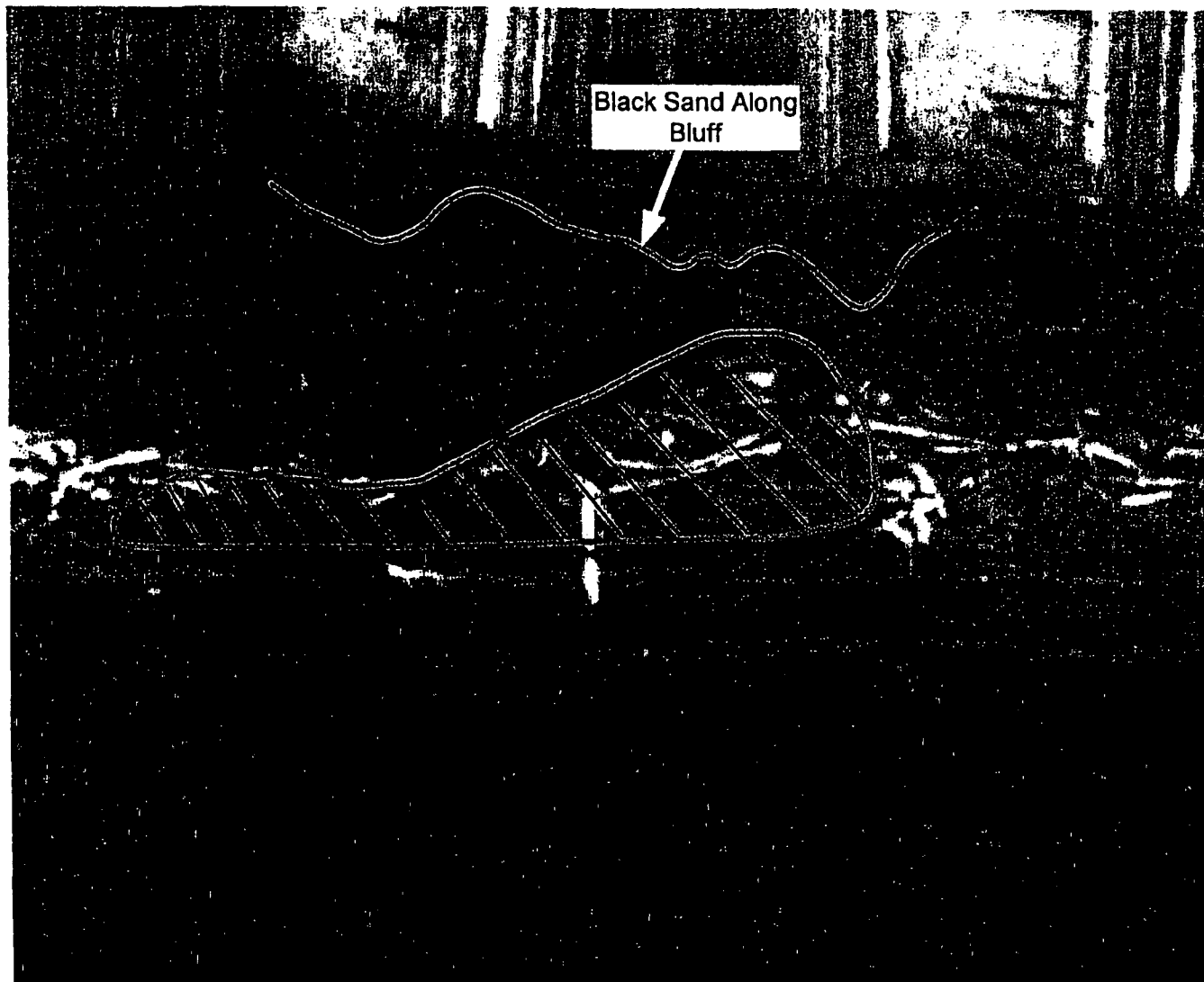


Approximate Scale
128 ft.

Figure 1
Site Plan

Crawford Street Corporation

BRIDGEWATER GROUP, INC.



Black Sand Along
Bluff



Approximate Scale
30 feet



Black sand on surface (removal area)
Approximately 1.5 feet deep

Figure 2

Black Sand Removal Area
Crawford Street Corporation

BRIDGEWATER GROUP, INC.



Oregon

John A. Kitzhaber, M.D., Governor

Department of Environmental Quality

811 SW Sixth Avenue

Portland, OR 97204-1390

(503) 229-5696

TDD (503) 229-6993

October 8, 1999

Mr. Robert Phillip
President
Crawford Street Corporation
3200 N.W. Yeon Street
Portland, Oregon 97210

Re: Crawford Street Site: Request for Performance of
Preliminary Assessment with Sampling

Dear Mr. Phillip:

This letter informs you of the results of our review of information regarding hazardous substance contamination at the Crawford Street facility located at 8424 N. Crawford Street in Portland, Oregon. The Oregon Department of Environmental Quality (DEQ) has determined that the Crawford Street site is a high priority for a preliminary assessment with sampling and requests that Crawford Street Corporation perform a preliminary assessment with sampling in accordance with the Environmental Cleanup Law, Oregon Revised Statutes (ORS) 465.200 *et seq.*

The Crawford Street facility is located within or near a portion of the Willamette River known as the Portland Harbor. A 1997 investigation revealed significant contamination of sediments within the harbor. DEQ has undertaken review of available information regarding properties throughout the harbor to identify potential sources of the sediment contamination. The results of DEQ's review for the Crawford Street facility are summarized in the enclosed Strategy Recommendation

Based on this review, DEQ has determined additional information is necessary to determine whether hazardous substances have been released or threaten to be released at the Crawford Street facility and come to be located in Willamette River sediments. The preliminary assessment with sampling will fully evaluate all upland, in-water and over-water activities that might have resulted in the release of hazardous substances and include sufficient sampling to assess whether hazardous substances have come to be located in Willamette River sediments at or near the Crawford Street facility. At a minimum, sampling will include the collection of surface and subsurface sediment samples at appropriate points adjacent to the Crawford Street facility.

DEQ-1

CRAW00000299

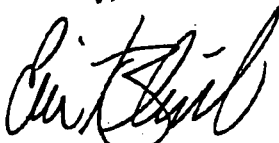
DEQ proposes that your performance of the preliminary assessment with sampling be governed by the enclosed Voluntary Cleanup Letter Agreement. The facility's preliminary assessment with sampling will be coordinated with harbor-wide sediments investigations currently being pursued by DEQ. This will require commencement of the preliminary assessment with sampling at the Crawford Street facility in the near future. DEQ therefore requests that you review the enclosed Strategy Recommendation and Voluntary Cleanup Letter Agreement, and inform DEQ whether will perform a preliminary assessment with sampling by signing and returning one original of the enclosed Voluntary Cleanup Letter Agreement within 30 calendar days of mailing of this letter. Please retain one signed original for your records. It is DEQ's expectation that a preliminary assessment and sampling work plan will be completed and submitted to DEQ within six weeks of signing the Voluntary Cleanup Letter Agreement.

Should you not agree to perform the preliminary assessment with sampling by execution of the Voluntary Cleanup Letter Agreement, DEQ will assume you are not willing to perform the requested work. In this case, as with other facilities within the Portland Harbor, DEQ will complete the preliminary assessment with sampling itself, with subsequent cost recovery from liable parties.

Finally, please be advised that DEQ is required by ORS 465.330 to recover remedial action costs incurred by DEQ, including for site assessment activities. You will be receiving an invoice in the near future for DEQ's costs of preparing the Strategy Recommendation for the Crawford Street facility. Reimbursement of future DEQ costs will be provided through the Voluntary Cleanup Letter Agreement for the facility, if one is entered.

Please Contact me at 503 229-5648 if you have any questions regarding the enclosed Strategy Recommendation .

Sincerely,



Eric Blischke,
Coordinator
Portland Harbor Study Area
Waste Management and Cleanup Division

Enclosures

c: Kurt Burkholder, DOJ
Dave St. Louis, Manager, NWR Site Assessment Program
Mike Rosen, NWR Voluntary Cleanup Program
Gil Wistar, Coordinator, Site Assessment Program
ESCI File No.: 2363

CRAW00000300



Oregon

John A. Kitzhaber, M.D., Governor

Department of Environmental Quality

811 SW Sixth Avenue

Portland, OR 97204-1390

(503) 229-5696

TDD (503) 229-6993

October 6, 1999

Mr. Robert Phillip
President
Crawford Street Corporation
3200 N.W. Yeon Street
Portland, Oregon 97210

SUBJECT: Voluntary Cleanup Letter Agreement

Dear Mr. Phillip:

This letter serves as an agreement between the Oregon Department of Environmental Quality (DEQ) and Crawford Street Corporation for performance of a preliminary assessment with sampling regarding hazardous substances at your property located at: 8424 N. Crawford Street in Portland, Oregon.

You agree to perform a preliminary assessment and submit it to DEQ within 30 business days of your execution of this Letter Agreement. The preliminary assessment will provide the information described in DEQ guidance for the completion of a preliminary assessment and a proposed sampling program. DEQ will review documents submitted by you or on your behalf regarding the preliminary assessment and investigation of the above referenced site.

A sub-account of the Hazardous Substances Remedial Action Fund has been established to be drawn upon by DEQ as project costs are incurred. When you have signed this letter agreement, you will be invoiced monthly for DEQ project costs, including the costs of preparing the DEQ strategy recommendation and any ongoing review and oversight costs. You will pay DEQ invoices within 30 days of receipt. A sample invoice is attached.

DEQ project costs will include direct costs and indirect costs. Direct costs include site-specific expenses and legal costs. Indirect costs are those general management and support costs of the DEQ and of the Waste Management and Cleanup Division (WMCD) allocable to DEQ oversight of this Letter Agreement which are not charged as direct, site-specific costs. Review and oversight costs shall not include any unreasonable costs or costs not otherwise recoverable by DEQ under ORS 465.255.

DEQ-1

CRAW00000301

Voluntary Cleanup Letter Agreement
Page 2

This Letter Agreement is not and shall not be construed as an admission by Crawford Street Corporation of any liability under ORS 465.255 or any other law or as a waiver of any defense to such liability. This Letter Agreement is not and shall not be construed as a waiver, release or settlement of claims DEQ may have against Crawford Street Corporation or any other person or as a waiver of any enforcement authority DEQ may have with respect to Crawford Street Corporation or the property. Upon DEQ's request and as necessary to oversight of your work under this Letter Agreement, Crawford Street Corporation shall provide DEQ with data and records related to investigation and cleanup activities at the property, excluding any privileged documents identified as such by you.

Following execution of the letter agreement, a DEQ Project Manager will be assigned for the review of the preliminary assessment and oversight of investigation activities associated with your property.

DEQ looks forward to working with you.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert P. Brannigan".

Neil Mullane
Administrator
Northwest Region

Voluntary Cleanup Letter Agreement
Page 3

If the terms of this Letter Agreement are acceptable to Crawford Street Corporation, please have it executed by an authorized representative in the space provided below and returned to us.

Accepted and agreed to this _____ day of _____,

By: _____

Title: _____

Attachment

DEQ SITE ASSESSMENT PROGRAM - STRATEGY RECOMMENDATION

Site Name: Crawford Street Corporation, including:
Columbia Forge and Machine Works, Inc.
Lampros Steel, Inc.
TLS Steel Products, Inc.

Site CERCLIS Number: (none)

DEQ ECSI Number: 2363 —

Site Address: 8424 N. Crawford Street
Portland, Oregon 97203

Recommendation By: Tom Gainer, Voluntary Cleanup and
Site Assessment Section, DEQ Northwest
Region

Approved By: Michael E. Rosen, Portland Harbor
Manager, DEQ Northwest Region **EB FOR HER**

Date: October 1, 1999

NOTE: This site (Figure 1) is within a 6-mile stretch of the Lower Willamette River in which the U.S. Environmental Protection Agency (EPA) conducted a sediment study in 1997. This area, referred to as the *Portland Harbor*, is between the upstream ends of Sauvie Island (River Mile 3.5) and Swan Island (RM 9.5). The purpose of this Strategy Recommendation is to determine whether a specific hazardous substance release or a specific past operation at the site can be linked to contamination documented by EPA in sediments adjacent to the site. Because of this focus, the Strategy Recommendation may omit some historical site information, regulatory issues, or further-action conclusions that might otherwise be included in a DEQ Strategy Recommendation.

Background, Portland Harbor Sediment Evaluation

In September and October 1997, EPA's contractor, Roy F. Weston, Inc., collected 187 near-shore sediment samples within the Portland Harbor area defined above. Most samples (150) were collected as shallow grab samples within the upper 6 to 17 centimeters (cm) of sediments. 37 deeper composite core samples, from depths of between 55 and 139 cm, were also collected. All samples were analyzed for total metals, semi-volatile organic compounds (SVOCs), total organic

carbon (TOC), and sediment grain size. Selected samples were also variously analyzed for organotins (TBTs), pesticides, polychlorinated biphenyls (PCBs), chlorinated herbicides, and polychlorinated dioxins and dibenzofurans.

Based on analytical results from this study, which showed extensive sediment contamination, EPA is currently considering Portland Harbor for inclusion on the federal National Priority List (NPL - also known as Superfund).

Between late 1998 and mid-1999, DEQ examined EPA's analytical data to determine potential sources for sediment contamination in the Harbor. Potential sources associated with the most contaminated areas of sediment were sites already active in DEQ's Cleanup Programs.

DEQ categorized other areas of sediment contamination (i.e., those areas not thought to be associated with active Cleanup Program sites) by defining the areas:

- having the highest detected concentration of a given contaminant;
- with contaminant concentrations in the upper five percent of a given contaminant's detected concentrations; and
- having contaminant concentrations above an apparent "baseline range" most commonly detected throughout the harbor area.

DEQ categorized in this manner because there are no established freshwater sediment contaminant concentration guidelines or well-defined background contaminant concentrations for the harbor area. The contaminant "baseline range" was developed by examining the geometric distribution of concentrations for each contaminant detected. Any sediment concentrations that appeared to depart significantly from the ranges most commonly detected were suspected of lying near a potential contaminant source.

One shallow sediment sample (SD060) was collected adjacent to the Crawford Street site (Figure 2). As shown on Table 1, contaminant concentrations in sample SD060 that exceed Portland Harbor baseline concentrations include: arsenic, lead, mercury, di-n-butylphthalate, low- and high-molecular weight polynuclear aromatic hydrocarbons (LPAHs and HPAHs, respectively), and organotins.

Shallow sediment sample SD058 collected downstream of the subject property only had elevated levels of di-n-butylphthalate. This suggests that shallow sediment contamination adjacent to the subject property has not migrated beyond the SD058 location.

shallow sediment sample SB066 collected at the subject property had elevated levels of mercury, lead, and copper. This suggests that an upstream source may have contributed to the mercury, lead, and copper observed adjacent to the subject property. The Willamette Cove site is adjacent upstream of the subject site and has an extensive history of industrial activities.

Operational History

The subject site is approximately 15 acres and is divided into two portions by railroad tracks. There are currently three businesses that operate on the northern portion of the subject property: Columbia Forge and Machine Works, Inc. (CFM), Lampros Steel, Inc., and TLS Steel Products, Inc. The southern portion of the site adjacent to the Willamette River is currently used to store steel; it is not clear which of the three businesses use the southern portion, although it appears that it is used primarily by Lampros Steel.

CFM has produced metal forgings and stampings on the site since 1971. Their operation consists of three buildings and two yards. They use oil, lubricants, non-halogenated petroleum solvent, and degreasers that are sent offsite for recycling and/or disposal.

Lampros Steel has operated a structural steel distribution center since 1989, which includes off-loading railcars and trucks, cutting steel with saws, and loading outgoing trucks. Steel scrap is recycled, used motor oil is sent offsite, and synthetic saw coolant is reused or recycled on site. They have one 1,000-gallon aboveground diesel tank, located about 500 feet from the Willamette River.

TLS has operated a small steel forging and fabrication business since 1989. Hydraulic oil is used in their machines.

Crawford Street Corp. acquired the subject property from the Skookum Logging Supply Company in 1971. Aerial photographs indicate that the current buildings on the subject property were constructed between 1957 and 1963. ~~These structures were removed~~ extensively ~~by the subject property~~ from 1936 ~~the subject property~~ it appears that these structures were removed sometime between 1963 and 1977. Fire insurance maps from 1950 indicate that the property was used primarily by ~~Portland Lumber Mills~~ and also by the ~~Plylock Corp.~~ ~~Manufacturing Co.~~ and Skookum Logging Supply Co.

Regulatory History

Spills

In May 1987, a transformer capacitor at CFM overheated and leaked several ounces of PCB-containing oil. The spill was contained and PCB-impacted material, including the transformer, was shipped offsite for disposal.

Information provided by CFM and TLS indicates that they have minor (less than one gallon) spills of hydraulic, motor, or lubricating oil from machinery on to concrete. These spills are apparently cleaned up and have not caused impacts to soil or groundwater.

Lampros claims they have had no spills.

Underground Storage Tanks (USTs)

Two 1,000-gallon USTs, one containing gasoline and the other containing used oil, were decommissioned at the CFM site in December 1987. According to CFM, contamination was apparently not observed during decommissioning activities, which predates DEQ UST record-keeping.

Water Quality

CFM was issued an NPDES permit on October 7, 1992 and it was terminated on October 20, 1992, apparently because a permit was not required at that facility. A CFM stormwater sample collected and analyzed for metals by the Portland Bureau of Environmental Services in June 1997 detected low concentrations of copper (0.010 milligrams per liter), selenium (0.047 mg/L), and zinc (0.065 mg/L).

There are no water discharge permits on file for Lampros or TLS.

Hazardous Waste

CFM operates as a conditionally exempt small quantity hazardous waste generator and appears to be in compliance.

Lampros and TLS are not registered as hazardous waste generators at DEQ.

Site Hydrogeology

The site lies in the northern-most Portland Basin, a major north-southeast trending sediment filled structural depression found in the northern part of the Willamette River valley and adjoining Columbia River valley (Swanson et al, 1993). The basin is filled with recent alluvium, Pleistocene cataclysmic flood deposits, Miocene to Holocene nonmarine sedimentary rocks, and is underlain by Eocene to Miocene volcanic and sedimentary rocks that are exposed along the basin margins.

The youngest deposits are recent alluvium (silt, sand and gravel mixtures) characteristic of an active fluvial environment. These are made up of shoreline, river channel, and adjacent floodplain deposits.

Terraces that rise 50 to 100 feet above the northeastern shore of the Willamette were formed during Pleistocene cataclysmic flooding related to glacial Lake Missoula, and consist of unconsolidated mixtures of silt, sand, and gravel that generally are coarser than the recent deposits. Fill comprised of fine to medium sands and silt was also placed in many areas along the river during site development. The total thickness of recent alluvium and flood deposits appears to be about 100 feet in the vicinity of the site.

Coarse gravel to conglomerate of the Troutdale Formation, deposited by the ancestral Columbia River, underlies the cataclysmic flood deposits and appears to be about 100 feet thick in the vicinity of the site. Sandy River mudstone underlies the Troutdale Formation and appears to be about 100 feet thick. Basalt of the Columbia River Basalt (CRB) group forms the basement rock of the Portland Basin, and may be as much as several hundred feet thick in the vicinity of the site.

Aquifers in the unconsolidated sedimentary deposits generally are unconfined and localized due to heterogeneity of the deposits. The Troutdale Formation is an important regional aquifer and is widely tapped for both potable and non-potable uses. Interbedded Claystone and/or siltstone, or cementation often promotes confined aquifer conditions within the Troutdale Formation. Deep wells installed in fractured CRB can be very productive and important supply wells. Site elevation is about 30 feet above mean sea level.

Pathway Summary

The Crawford Street site lies in an area of mixed industrial, commercial, and residential use. Approximately 123 residences lie within 1/4 mile of the facility.

Site workers at the facility or trespassers could be exposed to contaminants in surface soil. Utility trench workers could potentially be exposed to subsurface contaminants through direct contact, inhalation, or incidental ingestion.

Oregon Water Resources Department has no well logs for domestic wells within one-half mile of the Crawford Street site.

The nearest significant wetland is located three miles downstream of the subject site at the mouth of Multnomah Channel. Cathedral Park is approximately 1,000 feet downstream of the subject site. Both recreational and subsistence fishing occur within the Lower Willamette River. Commercial fishing within the Portland Harbor is limited to a small Pacific lamprey fishery. Recreational boating, water skiing, swimming, and beach use also occur within the Harbor.

The Lower Willamette River provides habitat for 39 fish species, including populations of wild cutthroat trout, rainbow trout, and mountain whitefish. White sturgeon are plentiful within the Harbor. The Harbor is also an important migratory corridor, nursery habitat, and adult foraging area for two runs of chinook salmon, two runs of steelhead trout, and individual runs of coho and sockeye salmon.

Upper Willamette River populations of chinook and steelhead, which migrate through the Harbor, are listed as threatened species under the Federal Endangered Species Act. The Pacific lamprey is considered a federal species of concern.

Great blue herons, cormorants, osprey, mergansers, kingfishers, peregrine falcons, and bald eagles routinely forage within the Harbor. The area is also part of the wintering range for the Aleutian Canada goose. All are protected under the Migratory Bird Treaty Act. The peregrine falcon is federally listed as an endangered species, while the Aleutian Canada goose is federally listed as threatened species. The bald eagle also is a threatened species, but was recently proposed to be removed from this list.

There is little data on the nature and extent of the benthic community within Portland Harbor sediments. However, it is known that contamination in the benthos, which is a protected beneficial use, can be the source of food-chain effects that radiate up to the species listed above, including humans.

The Lower Willamette River is water quality limited for the following toxic compounds:

- Dioxins/furans (water column and sediments);
- Mercury (fish tissue);
- Pesticides (water column and sediments);
- Polynuclear Aromatic Hydrocarbons - PAHs - (water column and sediments); and
- Trace metals (water column and sediments).

DEQ's Water Quality Division is developing Total Maximum Daily Load requirements (TMDLs) within the lower Willamette River for these contaminants. A TMDL for 2,3,7,8-TCDD was established in 1991.

Conclusions/Recommendations

NOTE: As indicated previously, this review is limited to establishing a link between site activities and contamination in adjacent Portland Harbor sediments. It does not necessarily represent a thorough review of available site data, and the conclusions and recommendations presented below may reflect this limited focus.

The following conclusions are based on the contents of this review:

- Site activities may have resulted in sediment contamination adjacent to the site. Concentrations of sediment contaminants adjacent to the site that exceed Portland Harbor baseline levels include [REDACTED] PAH contaminants found in the sediment are associated with handling/storage of petroleum products, metals are associated with fabrication activities, and [REDACTED] (possibly from historical dock activities or by migration from upland use/storage of organotin-based paints on metal).
- It appears that the [REDACTED] site, where the concentration is over twice the Portland Harbor baseline value and 55 times the upstream concentration.
- Contaminant concentrations for mercury, LPAHs, and HPAHs observed in the upstream sediment sample are generally equal to or greater than in the sample adjacent to the Crawford Street site. This suggests that historical activities at the upstream adjacent Willamette Cove site may have contributed towards contamination observed adjacent to the subject site.
- Use of the site's historical docks, possibly for conveyance of materials and boat fueling and maintenance, is a possible source of sediment contamination by routine or accidental activities.

Contamination of river sediments adjacent to the Crawford Street site may represent a threat to human health and aquatic life within the river. An Expanded Preliminary Assessment (XPA) on the entire Crawford Street property (CFM, Lampros, TLS, and the southern portion of the property) should be conducted to evaluate sediment contamination, potential upland site contaminant sources, and past waste management practices and to determine the extent and source(s) of observed sediment contamination. Sediment sampling should include subsurface samples to further define the extent of contamination. As necessary, the XPA should present recommendations

aimed at preventing potential further contamination of adjacent sediment. DEQ has determined that these actions warrant a high priority for follow-up.

There is insufficient information to propose adding the site to DEQ's Confirmed Release List or Inventory.

References

DEQ consulted the following general references in preparing this Strategy Recommendation:

1. Portland Harbor Sediment Investigation Report, prepared by Roy F. Weston, Inc. for USEPA, May 1998.
2. Columbia Forge and Machine Works, Inc. response to DEQ Site Assessment Information Request, April 9, 1999.
3. Lampros Steel, Inc. response to DEQ Site Assessment Information Request, March 15, 1999.
4. TLS Steel Products, Inc. response to DEQ Site Assessment Information Request, March 19, 1999.
5. DEQ LUST Database.
6. DEQ HWIMSY Hazardous Waste Generator Database.
7. DEQ SPINS Spill Database.
8. MetroScan Property Records, Multnomah County, Oregon.

Attachments

Table 1: River Sediment Contaminant Concentrations

Figure 1: Site Location Map

Figure 2: Sediment Sampling Points, 1997 Portland Harbor Sediment Investigation



Oregon

John A. Kitzhaber, M.D., Governor

Department of Environmental Quality

Northwest Region Portland Office

2020 SW 4th Avenue, Suite 400

Portland, OR 97201-4987

(503) 229-5263

FAX (503) 229-6945

TTY (503) 229-5471

July 24, 2000

Matt Cusma
Schnitzer Steel Industries
P.O. Box 10047
Portland, Oregon 97296-0047

RE: Crawford Street Corporation Site
8424 and 8524 N. Crawford Street, Portland, Oregon
Revised Preliminary Assessment

Dear Mr. Cusma:

Thank you for submitting the June 14, 2000 revised Preliminary Assessment (PA) of the above-referenced site. As discussed during our meeting on July 7, 2000, the Oregon Department of Environmental Quality (DEQ) appreciates the revisions made to the PA, however, DEQ believes that additional sampling is necessary to meet the objectives of the PA. In particular, the sampling must be adequate to determine whether a current source and pathway for Willamette River contamination exists at the Crawford Street Corporation (CSC) site. Regardless of whether CSC is ultimately responsible for contamination that did not originate on the CSC property, CSC is still responsible for demonstrating to DEQ that this is the case (i.e., that the contamination did originate off-site). In addition, should it be necessary to collect off-site samples in order to meet the needs of the investigation, DEQ expects that CSC will make every reasonable effort to obtain that access.

North Area

- It appears that proposed surface soil samples SS-2 through SS-7 are located off site on City of Portland property. The objective of these samples is to evaluate potential contaminant migration via surface water flow from the north portion of the subject property. If the objective of these samples can be met through the collection of samples on the CSC property, modified sample locations should be proposed. During our recent meeting it appeared that samples could be collected on the subject property from the vicinity of at least SS-1, -6, and maybe -4. However, in some cases the collection of samples on City of Portland property may be necessary.

South Area

- Soil/sediment samples should be collected from beneath the two eight-inch pipes located near the riverbank to evaluate potential historic discharges. Analyses should include polycyclic aromatic hydrocarbons (PAH), volatile organic compounds (VOC), and metals. Although it is not clear what these outfalls were used for, the

Crawford Street Corporation Site
July 24, 2000
Page 2 of 2



outfalls represent a significant contaminant migration pathway that requires characterization.

- Subsurface soil and groundwater samples should be collected near the riverbank downgradient (south) of the three primary potential historical source areas: 1) 1969 sawmill and planing mill and 1911 and 1924 planing mill; 2) 1905 sawmill and 1924 Woolen Mills warehouse; and 3) 1924 foundry, machine shop, pattern shop, and coke storage and associated septic tank drainfield. Such data is necessary to determine if these historic source areas represent a current or past source of Willamette River contamination. Soil cores should be observed continuously and sampled at the most contaminated interval based on visual observation and PID/FID field screening. Analytes should include VOC and PAH at each location plus metals downgradient from the foundry.
- Soil sample SS-8 in the black sand should be collected in the subsurface interval that appears most contaminated based on visual observation and PID/FID field screening. Additional analytes (from those proposed for SS-8 and SS-9) should include total and TCLP cadmium and chromium and polychlorinated biphenyls to evaluate contaminants often associated with petroleum tank cleaning.

DEQ does not expect the PA to be revised, and looks forward to a revised sampling plan in letter format by August 11, 2000. Please call me if you have questions.

Sincerely,

Tom Gainer, P.E.
Project Manager

cc: Ross Rieke, Bridgewater Group
Rod Struck, DEQ/NWR
Eric Blischke, DEQ/NWR

April 9, 1999

Mr. Steve Fortuna
Site Assessment Program
Oregon Department of Environmental Quality
2020 S.W. Fourth Avenue, Suite 400
Portland, OR 97201-4987

RE: Response to Information Request
Crawford Street Corporation/Columbia Forge & Machine Works, Inc.
8424 N. Crawford Street
Portland, OR 97203
Multnomah County

Dear Mr. Fortuna:

Columbia Forge and Machine Works (CFMW) received your letter dated March 3, 1999 requesting information regarding our site at the referenced address. We have reviewed our files and have assembled the following information in response to your request. We have presented the data in the same format as the *Site Assessment Information Request* outline you provided with your letter so facilitate your review of the provided information.

Background Information

Facility Name and Address

The site is most commonly referred to as:

Columbia Forge & Machine Works, Inc.
8424 N. Crawford Street
Portland, Oregon 97203

Facility Owners and Operators Names, Titles, Addresses, and Phone Numbers

The site is currently owned by Crawford Street Corporation. The site is operated by Columbia Forge & Machine Works, Inc. The site contact is:

Doug McMullin, M.E.
8424 N. Crawford Street
Portland, Oregon 97203
Phone (503) 286-3621

RECEIVED
STOEL RIVES LLP

CW 4/13/99

CRAW00000450

Current Use of Site and Year Operations Began

The site is used to produce metal forgings and stampings and began operation in approximately 1971.

Past Use of Site

The site was acquired from the Skookum Company in 1971. Uses of the site prior to 1971 are unknown.

Size of Site and Tax Lot Numbers

The site encompasses approximately 57,000 square feet (see Attachment 1). The tax lot number is TL3, Lots 1-8, Block 6. The site consists of three buildings (approximately 27,000 square feet) and two yards (approximately 30,000 square feet).

Site Security

The site is entirely fenced except for the building footprints.

Surrounding Land Use

The site is located in an industrialized area. Surrounding facilities include Lampros Steel, Inc. to the east and west. A railroad right-of-way is the southern boundary and Crawford Street is the northern boundary. Across Crawford Street and north of the site is a heavy equipment/truck repair company.

Site Map

A site map is attached (Attachment 1) showing the requested items and features.

Building Names and Functions

The primary buildings and the primary use on the site are:

- Building # 1- Manufacturing
- Building # 2 - Manufacturing and storage of tools
- Building # 3 – Shipping, manufacturing and warehousing
- Oil Storage Hut – Drum storage

Most of the site consists of buildings. Open yards are generally paved and/or have roofs.

Outdoor Process Areas

The primary outdoor process areas on the site consist of:

- The Central Yard is where steel pieces are manufactured.
- The Western Yard is where raw steel is stored.

These areas are shown on Attachment 1.

Above Ground Storage Tanks

No above ground storage tanks containing liquids are located on the site.

One stationary propane tank is located in the Central Yard along the eastern property boundary. Three stationary ambient oxygen tanks are located in the Central Yard. A limited number of oxygen, acetylene and propane tanks are present in the Weld Shop area. CFMW forklifts also have small propane attached tanks.

Underground Storage Tanks

All known underground storage tanks (USTs) were removed from the site in the late 1980s as part of an overall UST removal program. The tanks were removed by a licensed contractor using the standard of practice at that time and in accordance with applicable regulations.

Two underground storage tanks are believed to have been located in the Central Yard portion and the Weld Shop of the site. One tank was a 1,000-gallon gasoline tank (Weld Shop) and one was a 1,000-gallon bunker oil tank (Central Yard). The DEQ Notification Form is included in Attachment 2.

No evidence of contamination was reported during the removal of these tanks.

Waste Treatment Systems

No waste treatment systems are located on site. All liquids are recycled when spent. All solids are disposed as solid waste with the regional waste disposal contractor.

On-site Wells

No wells exist on site.

Chemical/Waste Handling Information

Chemical Products Used or Stored

A copy of the most recent Oregon State Fire Marshall Hazardous Substance Information Survey is included as Attachment 3. The survey presents a complete list of the existing reportable quantities of hazardous substances used on the site.

Lists of chemicals used historically at the site are also provided in Attachment 3. A review of the available records indicates the facility has been very successful over the years in reducing their use of hazardous chemicals/materials.

All Waste Products Generated or Stored

The primary wastes generated on the site consist of:

- Used oil
- Used lubricant
- Used petroleum naphtha solvent (non-halogenated) in parts washers
- Used degreaser
- Other solid waste (lunch room, office and debris, etc.)

All discarded metal generated during manufacturing is stored on-site in bins and shipped off-site for recycling. The metal is not considered a waste product.

Approximate Volumes of Chemical Used and Wastes Generated

The volume of wastes generated each year is, approximately:

- 400 to 998 gallons of used oil (motor and hydraulic) are generated and stored at the site annually. All used oil is recycled by Spencer Environmental.
- 0 to 4 gallons of used lubricant are generated at the site annually and recycled. A maximum of 20 to 49 gallons was stored on-site 1998.
- 0 to 4 gallons of degreaser material is generated at the site annually and recycled. A maximum of 10 to 19 gallons of the material was stored on-site in 1998.
- Up to 72 cubic yards of solid waste material is generated and hauled off-site to a permitted landfill each year.
- Used solvent (53 gallons in 1998) was recycled from the parts cleaners. Approximately 55 gallons of petroleum naphtha solvent is typically stored on site.

Any On-site Chemical or Waste Treatment Systems

There are no chemical or waste treatment systems on site.

Past and Present Chemical and Waste Storage and Disposal Areas

The following areas are used to store waste materials on the site.

- Used oil, lubricants and degreaser materials are stored within a cover containment area referred to as the Oil Storage Hut (Attachment 1).
- Used petroleum distillate solvent is contained in 2 parts washers, both located in Building 3. Safety-Kleen, routinely services the units and transports the distillate to their facility in Clackamas, Oregon for eventual recycling.

Other solid waste is contained in wastebaskets and garbage cans at various locations around the facility. This material is either segregated for recycling or placed in a six cubic yard dumpster at the east end of the Oil Storage Hut. Paper and wood debris (solid waste) is typically hauled off site by an independent recycler or self hauled to a recycling facility.

Type, Quantity, and Destination of Wastes Removed from the Site

Approximately 72 cubic yards of solid waste per year are disposed at the USA Waste facility in Hillsboro, Oregon. Approximately 1,000 to 4,999 gallons of used hydraulic and motor oil is removed from the site on a yearly basis for recycling by Spencer Environmental of Oregon City, Oregon. Other degreaser (0 to 4 gallons) and organic lubricating material (0 to 4 gallons) is also periodically recycled by Spencer Environmental. Safety-Kleen transports and recycles the petroleum naphtha solvent (53 gallons in 1998) from CFMW. The solvent is taken to their Clackamas, Oregon facility.

Spills or Releases During Operation or Ownership

Minor releases of lubricating, hydraulic, or motor oil have occurred near machinery. The release is typically a very small volume (i.e., less than one gallon), on concrete, and is always cleaned up immediately. These incidents have not caused impacts to soil or ground water.

In May 1987, a transformer capacitor overheated and leaked a small volume (estimated to be 2 to 3 ounces) of PCB containing oil. The oil impacted the transformer, which was the surface below the capacitor which completely contained the spill. The volume released was reported to be less than 10 pounds. After attempting to have the transformer unit cleaned for reuse, all the PCB impacted material and equipment, including the transformer which caught the spill, was transported off site and disposed of by General Electric. Disposal records are provided in Attachment 4.

Information Regarding Chemical Substances Used, Stored, or Released at the Site by Prior Owners or Operators

There is no information regarding chemical substances used, stored, or released at the site prior to 1971. As mentioned above, Columbia Forge and Machine Works, Inc. has operated at this site since approximately 1971.

Existing or Expired Regulatory Permits

The facility historically had a General NPDES Storm water discharge permit No.1200-L issued by the Oregon Department of Environmental Quality. The permit was issued on October 7, 1992 and was terminated effective October 20, 1992. DEQ and BES have determined a storm water permit for this facility is not required.

The facility is also listed as a conditionally exempt hazardous waste generator because they use a small volume of petroleum naphtha solvent. The facility generator number is ORD009022104. This material is transported and recycled by Safety-Kleen.

Sampling/Cleanup/Investigation Information

Environmental Investigations/Sampling/Monitoring Performed at Site

Previous environmental investigations on the site have included soil sampling and analysis, related to the removal of two underground storage tanks. Additional samples were collected in conjunction with the transformer oil release. Laboratory reports and summary memoranda, where they exist, are attached (Attachments 5,6 and 7). No other known, documented environmental investigations have been performed on the site.

Underground Storage Tank Sampling

CFMW has collected and analyzed 3 soil samples (SAMPLE #1, #2-Yard, and #3 Weld Shop) from the beneath the underground storage tanks after they were removed. Additional samples were taken of the tank product for waste disposal characterization. The laboratory reports for the soil sampling events are provided in Attachment 5.

Transformer Wipe Sampling

One sample was collected by Reidel Environmental Services on May 28, 1987, of the released transformer oil. The oil was found to contain PCBs. Additional samples (wipe and swab samples) were collected by Crosby & Overton in their attempt to

clean the impacted transformer. The laboratory reports and available sampling correspondence for the sampling events is presented in Attachment 6.

BES DEQ Storm Water Investigation

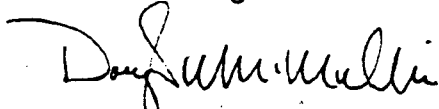
On July 9, 1997, the City of Portland Bureau of Environmental Services (BES) and the DEQ performed a storm water inspection at the CFMW facility to determine whether CWMW needed a storm water permit. After the inspection was completed it was determined that storm water runoff did not directly discharge to a waterway and implementation of best management practices would be adequate to mitigate storm water runoff. A sample collected by the BES, prior to the inspection (June 17, 1997) is provided in Attachment 7.

Summary

We hope the above information is useful to you. While we have provided all data and information that seems directly responsive to your questions, please understand that we have not attempted to provide every piece of information that is arguably called for. For example, we have not provided miscellaneous analytical data found in the files that we are unable to associate to any known sampling event or that we are unable to connect to the subject property. We have also not looked for, or provided, documents in the possession of our legal counsel that would be protected by attorney-client or work product privileges. We have also not contacted previous owners to obtain historical site information. Once again we hope this submittal is useful to you.

Sincerely,

Columbia Forge & Machine Works, Inc.



Doug McMullin, M.E.
General Manager

- Attachment 1 - Site Plan Figure
- Attachment 2 - Underground Storage Tank Notification Form
- Attachment 3 - State Fire Marshall Surveys and Other Documentation
- Attachment 4 - Transformer Spill Memorandum and Disposal Documentation
- Attachment 5 - UST Laboratory Analysis Reports
- Attachment 6 - Transformer Sampling and Analysis Reports
- Attachment 7 - BES Storm Water Sample

Attachment 1
Site Plan Figure

8424 N. CRAWFORD ST.
PORTLAND, OR 97203

PARKING IS ON CITY
STREETS.

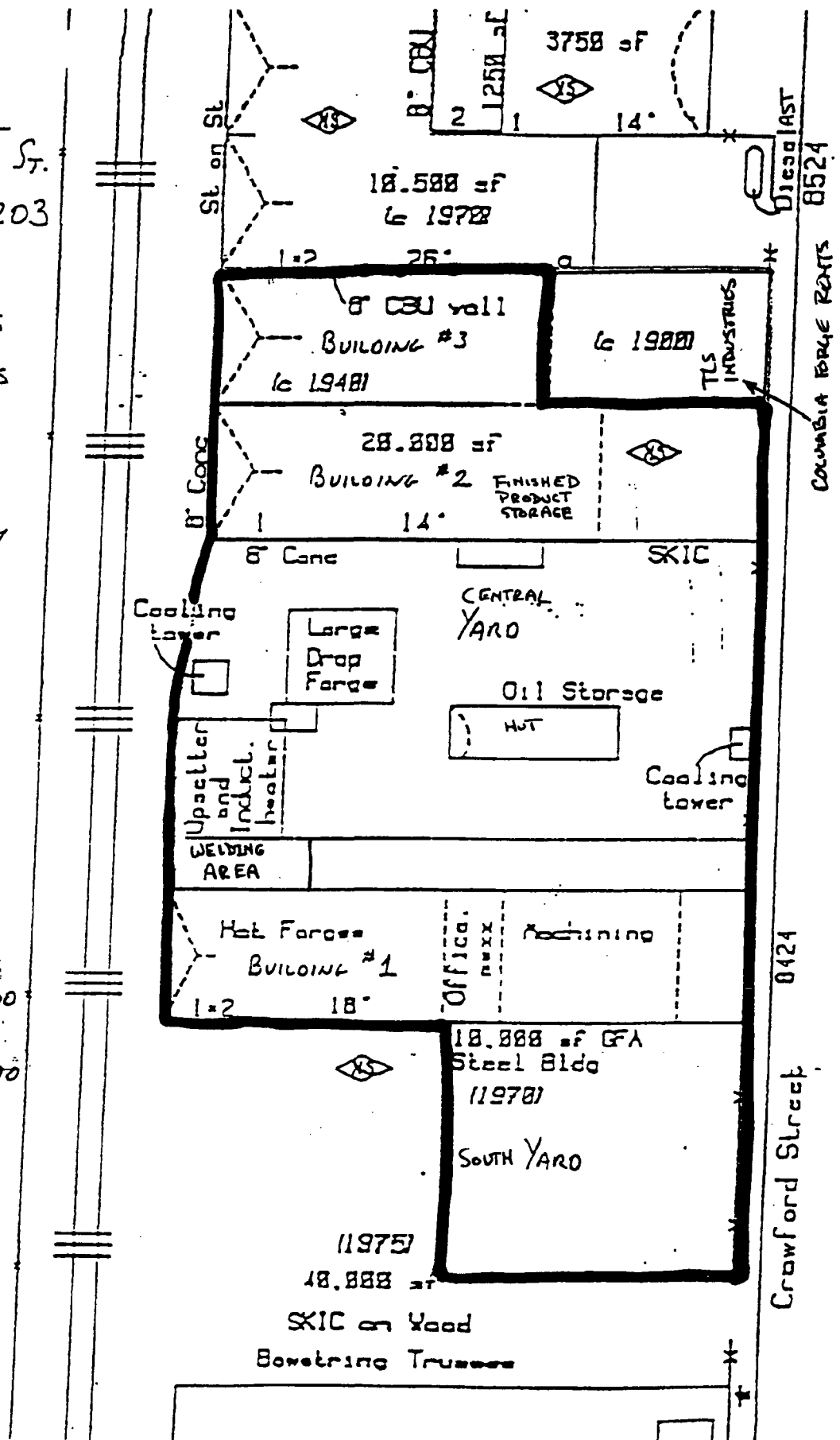
NO CHANGES OR
ADDITIONS ARE
PLANNED.

COLUMBIA TARGE

TOTAL sf = 57,000

BUILDING sf = 27,000

23 OCT 91



Attachment 2
Underground Storage Tank Notification Form

Attachment 3
Fire Marshall Survey and Other Documentation

Due Date: NOVEMBER 30, 1998

1997-1998

Facility ID Number
005730

OREGON STATE FIRE MARSHAL

HAZARDOUS SUBSTANCE INFORMATION SURVEY

PLEASE TYPE OR PRINT ONLY CHANGES OR ADDITIONS IN THE [BRACKETED] AREAS TO THE RIGHT OR BELOW THE PREPRINTED DATA

SECTION A: HAZARDOUS SUBSTANCE PRESENCE Check the correct box to the left.

- ☒ YES ☒ NO Are there hazardous substances present at this site in reportable quantities?
If yes, complete sections A, B, C, and D. If no, complete sections A, B and C.
A hazardous substance is any substance for which a Material Safety Data Sheet (MSDS) is required. If a previously reported substance is no longer present, see instructions for Section A.
- ☐ YES ☒ NO Are there Extremely Hazardous Substances (EHS) at this site that meet the threshold planning quantities?
- ☐ YES ☒ NO Is this facility subject to the reporting requirements of Section 112(r) of the Clean Air Act?

SECTION B: DEMOGRAPHIC DATA Complete, correct or add information in the [bracketed] areas.

1. SIC CODE 1: 3462 DEFINITION: IRON AND STEEL FORGINGS-MFG

2. SIC CODE 2: DEFINITION:

3. BUSINESS ACTIVITY:
STEEL FORGING

4. DUN & BRADSTREET #: 00-902-2104

5. MANAGER'S NAME: VINCE SCHILE - MGR

6. SEND TO ATTENTION OF: VINCE SCHILE - MGR

7. E-MAIL ADDRESS:

8. BUSINESS NAME: COLUMBIA FORGE & MACHINE

10. SITE ADDRESS:

3424 N CRAWFORD

CITY: PORTLAND

COUNTY: MULTNOMAH

STATE: OR

ZIP CODE: 97203

12. BUSINESS PHONE: 503-236-3621

13. NUMBER OF EMPLOYEES AT THIS SITE:

14. EMERGENCY ASSISTANCE CONTACT PERSON FOR THIS SITE:

VINCE SCHILE

15. EMERGENCY CONTACT PHONES: (503)

DAY 503-236-3621

NIGHT 360-256-0365

16. RESPONSIBLE FIRE DEPARTMENT: PORTLAND FIRE BUREAU

SPECIAL FIRE DEPARTMENT INFORMATION

This section is for information the fire service needs to know in case of an emergency.

17. ☐ YES ☒ NO WRITTEN EMERGENCY PLAN. IF YES, LOCATION: _____
18. ☐ YES ☒ NO AUTOMATIC FIRE SUPPRESSION SYSTEM PRESENT; e.g., sprinklered, halon system, etc.
19. ☐ YES ☒ NO ARE STORAGE BUILDINGS/TANKS/AREAS PLACARDED ACCORDING TO NFPA 704?
20. ☐ YES ☒ NO ARE OTHER TYPES OF PLACARDS USED? Doug Mcmullen

SECTION C: PERSON COMPLETING FORM

This person will be contacted to answer any questions needing clarification.

1. PRINT NAME: DOUG Mcmullen
2. SIGNATURE (REQUIRED): *Doug Mcmullen*
3. DATE SURVEY COMPLETED: 11/30/98

3424 N CRAWFORD
PORTLAND

OR 97203

RETAIN A COPY OF THIS SURVEY FOR 3 YEARS

PLEASE TYPE OR PRINT ALL ANSWERS THANK YOU

COMMON NAME/TRADE NAME: ARGON 75%/CARBON DIOXIDE 25%
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: ARGON

<input type="checkbox"/> 1. PURE <input checked="" type="checkbox"/> 2. MIXTURE <input type="checkbox"/> 3. NEW <input type="checkbox"/> 4. NO LONGER REPORTABLE	PHYSICAL STATE USE TABLE I	UNIT OF MEASURE USE TABLE II	AVG. AMT. CODE USE TABLE III	MAX. AMT. CODE USE TABLE III	AMT. IN CODE USE TABLE III	AMT. OUT CODE USE TABLE III	NUMBER OF DAYS ON SITE 3 DIGIT NO.	STORAGE CODE USE TABLES IV & V	HAZARD CLASSES USE TABLE VI	CAS NO. (IF KNOWN)
	3	3	10	20			365	L 2 4	2.2	0007440-37-1
STORAGE LOCATIONS AT SITE WELDING AREA AT REAR OF MAIN										UN/NA NO. (IF KNOWN)
3LDG										1956

COMMON NAME/TRADE NAME: ARGON 93%/OXYGEN 2%
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: ARGON

<input type="checkbox"/> 1. PURE <input checked="" type="checkbox"/> 2. MIXTURE <input type="checkbox"/> 3. NEW <input type="checkbox"/> 4. NO LONGER REPORTABLE	PHYSICAL STATE USE TABLE I	UNIT OF MEASURE USE TABLE II	AVG. AMT. CODE USE TABLE III	MAX. AMT. CODE USE TABLE III	AMT. IN CODE USE TABLE III	AMT. OUT CODE USE TABLE III	NUMBER OF DAYS ON SITE 3 DIGIT NO.	STORAGE CODE USE TABLES IV & V	HAZARD CLASSES USE TABLE VI	CAS NO. (IF KNOWN)
	3	3	10	20			365	L 2 4	2.2	0007440-37-1
STORAGE LOCATIONS AT SITE WELDING AREA AT REAR OF MAIN										UN/NA NO. (IF KNOWN)
3LDG										1956

COMMON NAME/TRADE NAME: DEGREASER 353
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: 2-BUTOXYETHANOL

<input type="checkbox"/> 1. PURE <input checked="" type="checkbox"/> 2. MIXTURE <input type="checkbox"/> 3. NEW <input type="checkbox"/> 4. NO LONGER REPORTABLE	PHYSICAL STATE USE TABLE I	UNIT OF MEASURE USE TABLE II	AVG. AMT. CODE USE TABLE III	MAX. AMT. CODE USE TABLE III	AMT. IN CODE USE TABLE III	AMT. OUT CODE USE TABLE III	NUMBER OF DAYS ON SITE 3 DIGIT NO.	STORAGE CODE USE TABLES IV & V	HAZARD CLASSES USE TABLE VI	CAS NO. (IF KNOWN)
	2	2	02	02			365	2 1 4	4.5 6.3	0000111-76-2
STORAGE LOCATIONS AT SITE OIL STORAGE AREA IN CENTER OF MAIN YARD										UN/NA NO. (IF KNOWN)
										0000

COMMON NAME/TRADE NAME: HYDRAULIC OIL
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: HIGHLY REFINED BASE LUBRICATING OILS

<input type="checkbox"/> 1. PURE <input checked="" type="checkbox"/> 2. MIXTURE <input type="checkbox"/> 3. NEW <input type="checkbox"/> 4. NO LONGER REPORTABLE	PHYSICAL STATE USE TABLE I	UNIT OF MEASURE USE TABLE II	AVG. AMT. CODE USE TABLE III	MAX. AMT. CODE USE TABLE III	AMT. IN CODE USE TABLE III	AMT. OUT CODE USE TABLE III	NUMBER OF DAYS ON SITE 3 DIGIT NO.	STORAGE CODE USE TABLES IV & V	HAZARD CLASSES USE TABLE VI	CAS NO. (IF KNOWN)
	2	2	10	10			365	2 1 4	4.5	0064742-65-0
STORAGE LOCATIONS AT SITE VARIOUS TYPES IN OIL STORAGE AREA IN CENTER OF MAIN YARD										UN/NA NO. (IF KNOWN)
										1270

005730

COMMON NAME/TRADE NAME: MOTOR OIL

HAZARDOUS INGREDIENT

HIGHEST CONCENTRATION: HIGHLY REFINED BASE OILS

EHS	112(f)(1)	PHYSICAL STATE	UNIT OF MEASURE	AVG. AMT. CODE	MAX. AMT. CODE	AMT. IN CODE	AMT. OUT CODE	NUMBER OF DAYS ON SITE	STORAGE CODE	HAZARD CLASSES	CAS NO. (IF KNOWN)
		USE TABLE I	USE TABLE II	USE TABLE III	USE TABLE III	USE TABLE III	USE TABLE III	3 DIGIT NO.	USE TABLES IV & V	USE TABLE VI	
2		PURE	2	2	04	04		365	D 1 4	4.5	0064742-54-7
		MIXTURE									
		NEW									
		NO LONGER REPORTABLE									
STORAGE LOCATIONS AT SITE OIL STORAGE AREA IN CENTER 0											
MAIN YARD											
UN/NA NO. (IF KNOWN) 1270											

COMMON NAME/TRADE NAME: ORGANIC COMPOUND 135

HAZARDOUS INGREDIENT

HIGHEST CONCENTRATION: NONE AS PER 29CFR 1910.1200

EHS	112(f)(1)	PHYSICAL STATE	UNIT OF MEASURE	AVG. AMT. CODE	MAX. AMT. CODE	AMT. IN CODE	AMT. OUT CODE	NUMBER OF DAYS ON SITE	STORAGE CODE	HAZARD CLASSES	CAS NO. (IF KNOWN)
		USE TABLE I	USE TABLE II	USE TABLE III	USE TABLE III	USE TABLE III	USE TABLE III	3 DIGIT NO.	USE TABLES IV & V	USE TABLE VI	
2		PURE	2	2	03	03		365	D 1 4	9.0	
		MIXTURE									
		NEW									
		NO LONGER REPORTABLE									
STORAGE LOCATIONS AT SITE OIL STORAGE AREA IN CENTER 0											
MAIN YARD											
UN/NA NO. (IF KNOWN) 0000											

COMMON NAME/TRADE NAME: OXYGEN

HAZARDOUS INGREDIENT

HIGHEST CONCENTRATION: OXYGEN

EHS	112(f)(1)	PHYSICAL STATE	UNIT OF MEASURE	AVG. AMT. CODE	MAX. AMT. CODE	AMT. IN CODE	AMT. OUT CODE	NUMBER OF DAYS ON SITE	STORAGE CODE	HAZARD CLASSES	CAS NO. (IF KNOWN)
		USE TABLE I	USE TABLE II	USE TABLE III	USE TABLE III	USE TABLE III	USE TABLE III	3 DIGIT NO.	USE TABLES IV & V	USE TABLE VI	
1		PURE	3	3	20	20		365	L 2 4	2.2 5.1	0007782-44-7
		MIXTURE									
		NEW									
		NO LONGER REPORTABLE									
STORAGE LOCATIONS AT SITE WELDING AREA AT REAR OF MAIN											
BLDG											
UN/NA NO. (IF KNOWN) 1072											

COMMON NAME/TRADE NAME: PROPANE

HAZARDOUS INGREDIENT

HIGHEST CONCENTRATION: PROPANE

EHS	112(f)(1)	PHYSICAL STATE	UNIT OF MEASURE	AVG. AMT. CODE	MAX. AMT. CODE	AMT. IN CODE	AMT. OUT CODE	NUMBER OF DAYS ON SITE	STORAGE CODE	HAZARD CLASSES	CAS NO. (IF KNOWN)
		USE TABLE I	USE TABLE II	USE TABLE III	USE TABLE III	USE TABLE III	USE TABLE III	3 DIGIT NO.	USE TABLES IV & V	USE TABLE VI	
1		PURE	3	2	10	10		365	A 2 4	2.1 6.3	0000074-98-6
		MIXTURE									
		NEW									
		NO LONGER REPORTABLE									
STORAGE LOCATIONS AT SITE TANK LOCATED BY FENCE IN CEN											
TER OF MAIN YARD											
UN/NA NO. (IF KNOWN) 1075											

FORM
CHEMICAL

7-1998 OREGON STATE FIRE MARSHAL
HAZARDOUS SUBSTANCE INFORMATION SURVEY
SUBSTANCE INFORMATION - TYPE OR PRINT ONLY CHANGES IN THE [BRACKETED] AREAS

Facility ID Number

005730

SECTION D

COMMON NAME/TRADE NAME: PROPANE

HAZARDOUS INGREDIENT

IN HIGHEST CONCENTRATION: PROPANE

<input type="checkbox"/> EHS	<input type="checkbox"/> 112(r)	PHYSICAL STATE [USE TABLE I]	UNIT OF MEASURE [USE TABLE II]	AVG. AMT. CODE [USE TABLE III]	MAX. AMT. CODE [USE TABLE III]	AMT. IN CODE [USE TABLE III]	AMT. OUT CODE [USE TABLE III]	NUMBER OF DAYS ON SITE [USE TABLE III]	STORAGE CODE [USE TABLES IV & V]	HAZARD CLASSES [USE TABLE VI]	CAS NO. (IF KNOWN)
<input type="checkbox"/> 1		PURE									
<input type="checkbox"/> 2		MIXTURE									
<input type="checkbox"/> 3		NEW									
<input type="checkbox"/> 4		NO LONGER REPORTABLE									
STORAGE LOCATIONS AT SITE WELDING AREA AT REAR OF MAIN											
BLDG											
UN/NA NO. (IF KNOWN)											
1075											

COMMON NAME/TRADE NAME: THINNER 350B

HAZARDOUS INGREDIENT

IN HIGHEST CONCENTRATION: PETROLEUM NAPHTHA

<input type="checkbox"/> EHS	<input type="checkbox"/> 112(r)	PHYSICAL STATE [USE TABLE I]	UNIT OF MEASURE [USE TABLE II]	AVG. AMT. CODE [USE TABLE III]	MAX. AMT. CODE [USE TABLE III]	AMT. IN CODE [USE TABLE III]	AMT. OUT CODE [USE TABLE III]	NUMBER OF DAYS ON SITE [USE TABLE III]	STORAGE CODE [USE TABLES IV & V]	HAZARD CLASSES [USE TABLE VI]	CAS NO. (IF KNOWN)
<input type="checkbox"/> 2		PURE									
<input type="checkbox"/> 3		MIXTURE									
<input type="checkbox"/> 4		NEW									
<input type="checkbox"/> 5		NO LONGER REPORTABLE									
STORAGE LOCATIONS AT SITE OIL STORAGE AREA IN CENTER O											
F MAIN YARD											
UN/NA NO. (IF KNOWN)											
1255											

COMMON NAME/TRADE NAME:

HAZARDOUS INGREDIENT

IN HIGHEST CONCENTRATION:

<input type="checkbox"/> EHS	<input type="checkbox"/> 112(r)	PHYSICAL STATE [USE TABLE I]	UNIT OF MEASURE [USE TABLE II]	AVG. AMT. CODE [USE TABLE III]	MAX. AMT. CODE [USE TABLE III]	AMT. IN CODE [USE TABLE III]	AMT. OUT CODE [USE TABLE III]	NUMBER OF DAYS ON SITE [USE TABLE III]	STORAGE CODE [USE TABLES IV & V]	HAZARD CLASSES [USE TABLE VI]	CAS NO. (IF KNOWN)
<input type="checkbox"/> 1		PURE									
<input type="checkbox"/> 2		MIXTURE									
<input type="checkbox"/> 3		NEW									
<input type="checkbox"/> 4		NO LONGER REPORTABLE									
STORAGE LOCATIONS AT SITE											
UN/NA NO. (IF KNOWN)											

COMMON NAME/TRADE NAME:

HAZARDOUS INGREDIENT

IN HIGHEST CONCENTRATION:

<input type="checkbox"/> EHS	<input type="checkbox"/> 112(r)	PHYSICAL STATE [USE TABLE I]	UNIT OF MEASURE [USE TABLE II]	AVG. AMT. CODE [USE TABLE III]	MAX. AMT. CODE [USE TABLE III]	AMT. IN CODE [USE TABLE III]	AMT. OUT CODE [USE TABLE III]	NUMBER OF DAYS ON SITE [USE TABLE III]	STORAGE CODE [USE TABLES IV & V]	HAZARD CLASSES [USE TABLE VI]	CAS NO. (IF KNOWN)
<input type="checkbox"/> 1		PURE									
<input type="checkbox"/> 2		MIXTURE									
<input type="checkbox"/> 3		NEW									
<input type="checkbox"/> 4		NO LONGER REPORTABLE									
STORAGE LOCATIONS AT SITE											
UN/NA NO. (IF KNOWN)											

CRAW00000467

SECTION D

COMMON NAME/TRADE NAME:

HAZARDOUS INGREDIENT

HIGHEST CONCENTRATION:

<input type="checkbox"/> EHS <input type="checkbox"/> (12m)	PHYSICAL STATE	UNIT OF MEASURE	AVG. AMT. CODE	MAX. AMT. CODE	AMT. IN CODE	AMT. OUT CODE	NUMBER OF DAYS ON SITE	STORAGE CODE	HAZARD CLASSES	CAS NO. (IF KNOWN)
	USE TABLE I	USE TABLE II	USE TABLE III	USE TABLE III	USE TABLE III	USE TABLE III	3 DIGIT NO.	USE TABLES IV & V	USE TABLE VI	
	1 - PURE 2 - MIXTURE []	[]	[]	[]	[]	[]	[]	[] [] []	[] []	[]
<input type="checkbox"/> 1 - NEW 2 - NO LONGER REPORTABLE	STORAGE LOCATIONS AT SITE							[] [] []		UN/NA NO. (IF KNOWN)

COMMON NAME/TRADE NAME:

HAZARDOUS INGREDIENT

HIGHEST CONCENTRATION:

<input type="checkbox"/> EHS <input type="checkbox"/> (12m)	PHYSICAL STATE	UNIT OF MEASURE	AVG. AMT. CODE	MAX. AMT. CODE	AMT. IN CODE	AMT. OUT CODE	NUMBER OF DAYS ON SITE	STORAGE CODE	HAZARD CLASSES	CAS NO. (IF KNOWN)
	USE TABLE I	USE TABLE II	USE TABLE III	USE TABLE III	USE TABLE III	USE TABLE III	3 DIGIT NO.	USE TABLES IV & V	USE TABLE VI	
	1 - PURE 2 - MIXTURE []	[]	[]	[]	[]	[]	[]	[] [] []	[] []	[]
<input type="checkbox"/> 1 - NEW 2 - NO LONGER REPORTABLE	STORAGE LOCATIONS AT SITE							[] [] []		UN/NA NO. (IF KNOWN)

COMMON NAME/TRADE NAME:

HAZARDOUS INGREDIENT

HIGHEST CONCENTRATION:

<input type="checkbox"/> EHS <input type="checkbox"/> (12m)	PHYSICAL STATE	UNIT OF MEASURE	AVG. AMT. CODE	MAX. AMT. CODE	AMT. IN CODE	AMT. OUT CODE	NUMBER OF DAYS ON SITE	STORAGE CODE	HAZARD CLASSES	CAS NO. (IF KNOWN)
	USE TABLE I	USE TABLE II	USE TABLE III	USE TABLE III	USE TABLE III	USE TABLE III	3 DIGIT NO.	USE TABLES IV & V	USE TABLE VI	
	1 - PURE 2 - MIXTURE []	[]	[]	[]	[]	[]	[]	[] [] []	[] []	[]
<input type="checkbox"/> 1 - NEW 2 - NO LONGER REPORTABLE	STORAGE LOCATIONS AT SITE							[] [] []		UN/NA NO. (IF KNOWN)

COMMON NAME/TRADE NAME:

HAZARDOUS INGREDIENT

HIGHEST CONCENTRATION:

<input type="checkbox"/> EHS <input type="checkbox"/> (12m)	PHYSICAL STATE	UNIT OF MEASURE	AVG. AMT. CODE	MAX. AMT. CODE	AMT. IN CODE	AMT. OUT CODE	NUMBER OF DAYS ON SITE	STORAGE CODE	HAZARD CLASSES	CAS NO. (IF KNOWN)
	USE TABLE I	USE TABLE II	USE TABLE III	USE TABLE III	USE TABLE III	USE TABLE III	3 DIGIT NO.	USE TABLES IV & V	USE TABLE VI	
	1 - PURE 2 - MIXTURE []	[]	[]	[]	[]	[]	[]	[] [] []	[] []	[]
<input type="checkbox"/> 1 - NEW 2 - NO LONGER REPORTABLE	STORAGE LOCATIONS AT SITE							[] [] []		UN/NA NO. (IF KNOWN)



CT OF

PORTLAND, OREGON

FIRE PREVENTION DIVISION

CITY OF PORTLAND
Hazardous Substance Possession FeeCOLUMBIA FORGE & MACHINE
8424 N CRAWFORD
PORTLAND, OR 97203

Track #

151

Account #

E08-074-001

Please Remit:

\$*450.00

Must be received by:

01/15/90

*Late payments will be assessed an additional
1% per month after the due date.*Check Payable to:
Remit to:CITY TREASURER
Portland Fire Bureau
55 S.W. Ash Street
Portland, Oregon 97204

Detach and return upper portion with remittance ----->

State and Federal laws have been enacted to provide state and local emergency services and the community with information concerning hazardous substance locations and hazards. The legislation also provides that the local community participate and plan for responding to hazardous substance incidents.

Hazardous substance fees collected by the City of Portland will be used to fund a local data storage and retrieval system for hazardous chemical information provided by the state. This system will provide emergency responders with timely on-site information which will enable them to effectively manage incidents while minimizing the danger to emergency response personnel and the public.

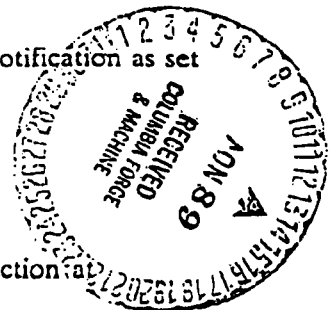
This fee is not a permit fee and does not indicate that the occupancy and use of a building is in compliance with Fire and Building Regulations. The fees collected for this purpose are not a duplication of fees charged by the Department of Environmental Quality or the State Fire Marshal's Office.

The annual hazardous substance fee will be used to administer a local information and protection program in accordance with Title 31 of the City Code, Fire Regulations, sections 31.80.010-31.80.070, "Hazardous Substances Emergency Planning." The fees will provide the Portland Bureau of Fire, Rescue & Emergency Services with a computerized information system that will be used by ALL emergency responders. This system will also ensure that emergency personnel have immediate access to information concerning the type of material, location, degree of hazard, available emergency systems and associated information so that they may effectively and safely deal with hazardous substance emergencies.

You are entitled to appeal specific requirements of these regulations by written notification as set forth in section 31.10.150 of the City Code, Title 31.

Appeals should be directed to: Hazardous Substance Section
55 S.W. Ash Street
Portland, Oregon 97204

If you have any questions about this bill, please call the Hazardous Substance Section at 760-1081.



B 11289

Track:

151

Account:

E08-074-001

Billing:

11/15/89

Due:

01/15/90

Amount:

\$*450.00

Late payments will be assessed an additional 1% per month after the due date

CRAW00000469

HAZARDOUS INVENTORY DATA

CHEMICAL NAME:	CHEMICAL HAZARD CLASS:	STATE QTY. RANGE:	QUANTITY RANGE:	FEE:
=====	=====	=====	=====	=====

** 151 005730, COLUMBIA FORGE & MACHINE
8424 N CRAWFORD

DEGREASER 853	UNKNOWN, PROBABLY CLASS C	0-99	0-199 ✓	0.00
ORGANIC COMPOUND 135	UNKNOWN, PROBABLY CLASS C	100-999	200-999 ✓	50.00 ✓
PROPANE	2.1, FLAMMABLE GAS	100-999	200-999 ✓	50.00 ✓
PROPYLENE	2.1, FLAMMABLE GAS	0-99	0-199 ✓	0.00
BLUE SHIELD 4	2.2, NONFLAMMABLE GAS	1,000-9,999	1,000-9,999 ✓	100.00 ✓
BLUE SHIELD 8	2.2, NONFLAMMABLE GAS	1,000-9,999	1,000-9,999 ✓	100.00 ✓
THINNER 3508	3.2, FLAMM. LIQ. FP 0-73 F	0-99	0-199 ✓	0.00
HYDRAULIC OIL	4.2, COMBUSTIBLE MATERIAL	100-999	200-999 ✓	50.00 ✓
MOTOR OIL	4.2, COMBUSTIBLE MATERIAL	0-99	0-199 ✓	0.00
GAS AIR FUEL	5.1, OXIDIZERS	0-99	0-199 ✓	0.00
OXYGEN	5.1, OXIDIZERS	1,000-9,999	1,000-9,999 ✓	100.00 ✓
** Subtotal **				450.00
*** Total ***				450.00 ✓

B 11290

CRAW00000470

ORDINANCE 162225

Chapter 31.40

(and a new Table 40-B is substituted to read:)

CHAPTER 31.40

TABLE 40 - B

(A) RADIOACTIVE SUBSTANCES OR RADIOACTIVE WASTES

(S) SOLIDS (in pounds)	(L) LIQUIDS (in gallons)	(G) GASES COMPRESSED (cu. ft. at STP)	FEE
>0 - 99	>0 - 99	>0 - 99	\$ 50
100 - 999	100 - 999	100 - 999	100
1,000 - 9,999	1,000 - 9,999	1,000 - 9,999	200
10,000 - 99,999	10,000 - 99,999	10,000 - 99,999	600
100,000 - 999,999	100,000 - 999,999	100,000 - 999,999	1,000
1,000,000 - up	1,000,000 - up	1,000,000 - up	1,400

(B) CLASS A & B POISONS; IRRITATING MATERIALS; CLASS A, B & C EXPLOSIVES, BLASTING AGENTS AND HIGHLY TOXIC SUBSTANCES

(S) SOLIDS (in pounds)	(L) LIQUIDS (in gallons)	(G) GASES COMPRESSED (cu. ft. at STP)	FEE
>0 - 9	>0 - 4	>0 - 19	\$ 25
10 - 99	5 - 99	20 - 99	50
100 - 999	100 - 999	100 - 999	100
1,000 - 9,999	1,000 - 9,999	1,000 - 9,999	200
10,000 - 99,999	10,000 - 99,999	10,000 - 99,999	600
100,000 - 999,999	100,000 - 999,999	100,000 - 999,999	1,000
1,000,000 - up	1,000,000 - up	1,000,000 - up	1,400

*** (C) ALL OTHER REGULATED HAZARDOUS SUBSTANCES, MATERIALS AND WASTES**

(S) SOLIDS (in pounds)	(L) LIQUIDS (in gallons)	(G) GASES COMPRESSED (cu. ft. at STP)	FEE
0 - 499	0 - 54	0 - 199	\$ 0
500 - 999	55 - 999	200 - 999	50
1,000 - 9,999	1,000 - 9,999	1,000 - 9,999	100
10,000 - 99,999	10,000 - 99,999	10,000 - 99,999	200
100,000 - 999,999	100,000 - 999,999	100,000 - 999,999	600
1,000,000 - up	1,000,000 - up	1,000,000 - up	1,000

* Permit fees for ordinary flammable and combustible liquids such as motor fuels contained in approved underground storage tanks are \$25 per tank per year. Heating fuels stored in approved underground tanks are exempt from this fee schedule.

V. LIST OF HAZARDOUS CHEMICALS (con't.)

HAZARDOUS CHEMICALS

LOCATION

G. Miscellaneous

Quick Set Adhesive 404	Maint. Area
Never-seez Anti-Seize Compound	Maint. Area
Floor Dry	Warehouse
Loctite Adhesive/Sealant 271	Maint. Area
Crack Check Cleaner C-F (Spray)	Supply Closet
Crack Check Developer D-NF (Spray)	Supply Closet
Crack Check Penetrant P-HF (Spray)	Supply Closet
Thread Sealant w/Teflon 14H, 14D, 14F	Maint. Area
Propane	Center Yard
Fel-Pro N-500 Antiseize	Maint. Area
Devon Plastic Steel Putty	Maint. Area
50 Hardhat Acorsol Spray	Supply Closet

V. LIST OF HAZARDOUS CHEMICALS (con't.)

<u>HAZARDOUS CHEMICALS</u>	<u>LOCATION</u>
F. Furnace Construction Materials	
Marinite M Calcium Silicate Board	Warehouse
Iytherm Ceramic Fiber Papers	Warehouse
Mizzou Castable Plus	Warehouse
A.P. Green: Refractory Bricks or Slopes	Warehouse
A.P. Green: Insulating Fire Brick: G 3	Warehouse
A.P. Green: High Duty Fireclay Brick: Idaho	Warehouse
Cerachrome Blanket Refractory	Warehouse
K-FAC 19 Board	Warehouse
Sairset Mortar	Warehouse
Durablanket 2600	Warehouse

V. LIST OF HAZARDOUS CHEMICALS (con't.)

<u>HAZARDOUS CHEMICALS</u>	<u>LOCATION</u>
E. Paints	
Sparvar Spray Paint - Metallic	
Item Nos. S-121, S-122, S-123	Supply Closet
Sparvar Fluorescent Spray Paint	
Item Nos. S-311, S-312	Supply Closet
Sparvar Spray Paint - Flat	
Item No. S-111	Supply Closet
Sparvar Spray Paint	
Item Nos. S-101, S-103, S-117, S-118	Supply Closet
Sparvar Spray Paint	
Covers 25 Items	Supply Closet
Rodda Alkyd Enamel 817	Warehouse
Rodda Alkyd Enamel 812 Spray Paint	Supply Closet
Rodda Alkyd Primer Red Oxide	Supply Closet

V. LIST OF HAZARDOUS CHEMICALS (con't.)

<u>HAZARDOUS CHEMICALS</u>	<u>LOCATION</u>
D. Welding and Soldering Supplies	
Oxygen	Welding Area
Liquid Air Fuel Gas	Welding Area
Blue Shield Nos.6,7 or 8 gas mixture	Welding Area
Blue Shield Nos. 4 or 5 gas mixture	Welding Area
Welco 1620 Auto Spatter Compound	Welding Area
Fleetweld 35 Welding rod	Welding Area
UTP 653 Stainless welding rod	Welding Area
UTP 65 312 Stainless Welding rod	Welding Area
Jet-LH78 Welding Rod (E7018)	Welding Area
Stainless Steel Welding Electrodes	Welding Area
Stainless Steel Welding Wire	Welding Area
WeldMold Stick Electrode	Welding Area
Silvaloy 45 Silver Solder	Welding Area
Ultra Flux	Welding Area
Braze Welding Wire & Rod	Welding Area
E7024 Welding Rod	Welding Area
E6013 Welding Rod	Welding Area
Tool Steel Flux-Cored Wire	Welding Area
Dual Shield T-1 and T-2 Flux-Cored Welding Rods	Welding Area
Mild and Low Alloy Steel Welding Wire	Welding Area
Fuel-Gas-Propylene	Welding Area

B 11311

CF&MW 8/87

CRAW00000475

V. LIST OF HAZARDOUS CHEMICALS (con't.)

HAZARDOUS CHEMICALS

LOCATION

C. Solvents and Thinners

Chevron Thinner 350 B
Rodda Thinner: Synthetic Reducer
853 Degreaser

Oil Storage
Warehouse==
Oil Storage

B 11310

CF&MW 8/87

CRAW00000476

V. LIST OF HAZARDOUS CHEMICALS (con't.)

<u>HAZARDOUS CHEMICALS</u>	<u>LOCATION</u>
B. Oils and Lubricants	
Unocal Unax AW 68	Oil Storage
Unocal Unax AW 46	Oil Storage
Unocal Turbine Oil 68	Oil Storage
Unocal Unoba EP Grease 2	Oil Storage
Unocal Marok 68 Oil	Oil Storage
Cimperial 1011 Coolant	Oil Storage
Cimclean 30 Coolant cleaner	Oil Storage
Soluble Organic Compound #135-	Oil Storage
die lube	Oil Storage
Unocal Soluble Oil 10 coolant	Oil Storage
Unocal Heavy Duty Motor Oil 30	Oil Storage
Chevron Insulating Oil	Oil Storage
Lubrizol 5525	Oil Storage
Unocal Hydraulic Oil AW 68	Oil Storage
Unocal Koolkut II HD	Oil Storage
Unocal Marok 220	Oil Storage
Anderal 500 Oil	Oil Storage
29 Moly Cart	Oil Storage
81 BP-2 (formerly 81 EP Light)	Oil Storage
Union Turbine Oil 100, 150	Oil Storage

Attachment 4
Transformer Spill Documentation

NOTE TO PCB SPILL FILE:

5/28/87 - An overheated capacitor located in an enclosed TOCCO cabinet ruptured and spilled a small amount (2-3oz) of PCB. The spill was totally contained in the cabinet and was isolated to the surface of a transformer located under the capacitor. The unit was taken out of service and labeled with warning signs.

6/3/87 - Crosby and Overton, an environmental clean-up company was contracted to clean-up the spill and remove the faulty capacitor in accordance with Oregon and EPA rules.

6/9/87 - Crosby and Overton removed the capacitor, cleaned up the spill and conducted wipe tests. The capacitor was placed in a barrel and temporarily stored on Columbia Forge premises.

Crosby and Overton could not achieve a clean-up to $10 \text{ ug} / 100 \text{ cm}^2$ consequently the unit was kept out of service with warning signs until a resolution could be found.

The ultimate solution included removal of the transformer (thus the removal of the spill surface) by Crosby and Overton — see other documentation for dates.

Ken [Signature]

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

9.3-0463.8.20

Manifest Document No.

21-308

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address

Columbia Forge
8424 N Crawford St. Portland, OR 97203

4. Generator's Phone (203) 286-3621

5. Transporter 1 Company Name

General Electric Company

6. US EPA ID Number

OR0980.8.33.537

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address

General Electric Company
2535 NW 28th Ave.
Portland, OR 97210

10. US EPA ID Number

OR0980.8.33.537

A. State Manifest Document Number

B. State Generator's ID

C. State Transporter's ID

D. Transporter's Phone 503-221-5098

E. State Transporter's ID

F. Transporter's Phone

G. State Facility's ID

H. Facility's Phone

(503) 221-5098

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)

12. Containers

No. Type

13. Total Quantity

14. Unit Wt/Vol

15. Waste No.

a. Hazardous substance Liquid; NOS
ORM-E NA91FF, RQ
(Polychlorinated Biphenyls)

001

Dr

0.250

P

X-002

b. Hazardous substance Solid; NOS
ORM-E NA91FF, RQ
(Polychlorinated Biphenyls)

001

cm

0

P

X-002

J. Additional Descriptions for Materials Listed Above

1 drum capacitor leaking capacitors
Transformer (empty)
* Estimated weight 1.82

K. Handling Codes for Wastes Listed Above

13. Special Handling Instructions and Additional Information

Dike and contain spills. Avoid contact with skin.
Alternated TSDH; Return to Generator
In case of spill call 1-800-626-2001 ex 66

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

Printed/Typed Name

John L. Shaw

Signature

John L. Shaw

Month Day Year

1 2 22 88

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Scott A. Dunham

Signature

Scott A. Dunham

Month Day Year

02 22 88

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

XFMR AND CAPACITOR WERE RECEIVED
IN (1) DRUM

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name

BARRY E. SCHMIDT

Signature

Barry E. Schmidt

Month Day Year

02 22 88

B 11439

ORIGINAL-RETURN TO GENERATOR

CRAW00000482

Attachment 5
Underground Storage Tank Lab Reports



COFFEY LABORATORIES, INC.

4914 N.E. 122nd Ave.
Portland, OR 97230
Phone: (503) 254-1794

March 24, 1987
Log #A870319-K
PO#: 2864

Columbia Forge & Machine
8424 N. Crawford St.
Portland, Oregon 97203

Attention: John Shore

Analysis Requested: Total Hydrocarbons

Sample ID: #3 Weld Shop

Sample Date: March 19, 1987

Sample Received: March 19, 1987

ANALYSIS

RESULTS

Gasoline

< 4 mg/kg

Diesel

< 4 mg/kg

Analysis by capillary GC/FID

The less than "<" symbol means none detected at or above the indicated value and represents the detection limit for the method.

Approved,

Sincerely,

Susan M. Brillante

Susan M. Coffey

Susan M. Brillante,
Laboratory Director

Susan M. Coffey,
President

SMC/gs

*Soil analysis
Weld shop
(no rvc)*

This report is for the sole and exclusive use of the above client.
Samples are retained a maximum of 15 days from the date of this letter.

B 11592

CRAW00000484



COFFEY LABORATORIES, INC.

4914 N.E. 122nd Ave.

Portland, OR 97230

Phone: (503) 254-1794

March 19, 1987

Log #A870316-B1-2

PO#: 2842

Columbia Forge & Machine
8424 N. Crawford St.
Portland, Oregon 97203

Attention: John Shore

Sample ID: #1 - Skookum, 3/13/87
#2 - Yard, 3/13/87

Samples Received: March 13, 1987

Samples Collected by: Crosby & Overton

ANALYSIS -----	SAMPLE #1 -----	SAMPLE #2 -----
Gasoline*	< 1.0	16**
Diesel*	< 1.0	< 1.0
Lead	---	30.0

Results in mg/kg

* Analysis by extraction capillary GC/FID.

** Appears to contain some other high boiling oil and possibly some kerosene.

The less than "<" symbol means none detected at or above the indicated value and represents the detection limit for the method.

Approved by,

Susan M. Brillante

Susan M. Brillante,
Laboratory Director

Sincerely,

Susan M. Coffey

Susan M. Coffey,
President

*Soil analysis
Yard &
sk*

SMC/gs

This report is for the sole and exclusive use of the above client. Samples are retained a maximum of 15 days from the date of this letter. (no)

B 11587

CRAW00000485



COFFEY LABORATORIES, INC.

4914 N.E. 122nd Ave.
Portland, OR 97230
Phone: (503) 254-1794

March 24, 1987
Log #A870316-B1-2

Columbia Forge & Machine
8424 N. Crawford St.
Portland, Oregon 97203

ATTENTION: John Shore

SUBJECT: EP TOXICITY ANALYSIS

METHOD: Federal Register, Vol. 45 No. 98, Monday, May 19, 1980,
Rules and Regulations, Appendix II, Page 33127.

FIELD DATA: Sample ID: #2 - Yard
Collected by: Sample collected and delivered by client.

Sample Received: March 16, 1987

<u>ANALYSIS</u>	<u>RESULTS</u>	<u>LIMIT</u>
Lead	< 0.100	5.0

The less than "<" symbol means none detected at or above the indicated value and represents the detection limit for the method.

Results are reported in milligrams per liter (mg/L)

Sincerely,

Susan M. Coffey
Susan M. Coffey,
President

SMC/gs

*ordered with for 1st
2nd soil OK
file only El-
done*

This report is for the sole and exclusive use of the above client.
Samples are retained a maximum of 15 days from the date of this letter.

B 11588

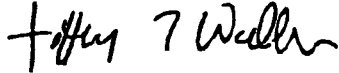
CRAW00000486

Attachment 6
Transformer Sampling and Analysis Reports

Currently, the transformer is back at your facility awaiting final disposition. Due to the inability to get it clean, a suitable disposal facility is being sought, at your request.

Sincerely,

CROSBY & OVERTON, INC.

A handwritten signature in cursive script, appearing to read "Jeffrey T. Wallace".

Jeffrey T. Wallace
Hazmat Technical Supervisor

JTW:dk

d30.jw

B 11444

CRAW00000489

NORTHWEST TESTING LABORATORIES, INC.

CONSTRUCTION INSPECTION
MATERIALS INSPECTION
CHEMICAL ANALYSIS
PHYSICAL TESTING

5405 N. Lagoon Avenue
P.O. Box 17126
Portland, Oregon 97217-0126
Phone: (503) 289-1778

NON-DESTRUCTIVE TESTING
WELDING CERTIFICATION
SOIL TESTING
ASSAYING

December 22, 1987

Crosby & Overton
5420 N. Lagoon
Portland, Oregon 97217

Attention: Mr. Jeff Wallace

Subject: Analysis on one (1) sample received on 12-14-87,
per your P.O. Number 22041

REPORT:

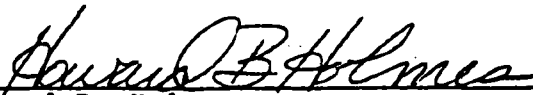
Item: Hexane Wipe -120

Reference: Columbia Forge

Analysis:

Total PCB's, micrograms 7.5

Respectfully,
NORTHWEST TESTING LABORATORIES, INC.


Howard B. Holmes,
Assistant Supervisor, Chemistry

Report Number: 310693

B 11445

NORTHWEST TESTING LABORATORIES, INC.

CONSTRUCTION INSPECTION
MATERIALS INSPECTION
CHEMICAL ANALYSIS
PHYSICAL TESTING

5405 N. Lagoon Avenue
P.O. Box 17126
Portland, Oregon 97217-0126
Phone: (503) 289-1778
December 28, 1987

NON-DESTRUCTIVE TESTING
WELDING CERTIFICATION
SOIL TESTING
ASSAYING

Crosby & Overton
5420 N. Lagoon
Portland, Oregon 97217

Attention: Mr. Jeff Wallace

Subject: Analysis on three (3) samples received on
12-21-87, per your P.O. Number 22041.

REPORT:

Item: Hexane Swab Sample

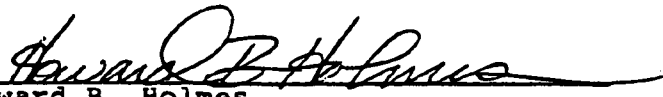
Reference: Columbia Forge

Analysis:

	<u>TOTAL PCB's (1260) micrograms</u>
121 (Blank)	2.5
122 (Transformer Bottom)	12
123 (Transformer Side)	270

Respectfully,
NORTHWEST TESTING LABORATORIES, INC.

Fred Thomas, Chemist


Howard B. Holmes
Assistant Supervisor, Chemistry

Report Number: 310875

B 11446

AS A MUTUAL PROTECTION TO CLIENTS, THE PUBLIC AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE
CONFIDENTIAL PROPERTY OF CLIENTS AND ARE INTENDED FOR THE USE OF OUR CLIENTS ONLY. NO OTHER PERSON
OR ENTITY MAY UTILIZE THE REPORT OR ANY PORTION THEREOF WITHOUT OUR WRITTEN APPROVAL.

CRAW00000491



Problem Solvers

Water, Food & Research Lab, Inc.

Laboratory: 13015 S.W. Pacific Hwy, Tigard, Oregon 97223

Mailing Address: P.O. Box 19700, Portland, Oregon 97219

Telephone (503) 639-9311

COLUMBIA FORGE & MACHINE WORKS, INC.
ATTN: HENRY STROMQUIST, GEN MGR.
8424 N. CRAWFORD STREET
PORTLAND, OR 97203

SAMPLE NO # 4720

PHONE 286-3621

CC: MANUFACTURING MANAGEMENT, INC.
ATTN: NORMAN WEBB, CORP. ENV. OFFICER
444 PORT AVENUE
ST HELENS, OREGON 97051

241-4796

CHEMICAL CONTAMINANTS LABORATORY REPORT

*****~~CC~~ JUNE 1987 *****

SAMPLE: SPECIAL SAMPLE -LEAK FROM TRANSFORMER ON EQUIPMENT
SAMPLER: CERTIFIED SAMPLED BY PBS FROM LAB
LOCATION: UNDER TRANSFORMER ON EQUIPMENT, LIQUID POOLED IN PAN.
DATE SAMPLED: 05-28-87 AT 1130 HRS BY PS
DATE RECEIVED: 05-28-87 (PRIORITY ANALYSIS)

CONTAMINANT *****	EPA METHOD *****	LIMIT *PPM*	RESULTS * *****	ANAL DATE *****	ANALYST *****
PCB'S	EPA		990,000 PPM	05-29-87	L.G.
(99% PURE, AL 1254)					

CERTIFIED BY:

TESTED BY EPA CERTIFIED LAB, COL LAB ID # 14817



PAUL B. STEVENS
Microbiologist/Biochemist
LAB DIRECTOR (EPA/OSHD # 24)

RECOMMENDATIONS: SPECIAL CLEANUP PERSONNEL
NEEDED TO HANDLE HAZARDOUS WASTE MATERIAL.

< = LESS THAN OR NONE DETECTED
ALL RESULTS IN PPM = MG/L

B 11458

CERTIFIED

CRAW00000492

Attachment 7
BES Storm Water Sample Results



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 6/17/97 17:10

System ID AB12647

Sample ID SRP970116

Page:

1

Proj./Company Name: BES INVESTIGATIONS

Address/Location: COLUMBIA FORGING
N CRAWFORD

Date Received:

6/17/97

Sample Status:

REPORT QUEUE

Proj Subcategory: ENVIRONMENTAL COMPLIANCE

Sample Point Code: 0

IMS File: 3050.004

Sample Type:

GRAB

Sample Matrix:

SURFWTR

Collected By:

RMC

Comments:

Test Parameter	Result	Units	MDL	Method
MET ICP METALS (HIGH-LEVEL)				
CADMIUM	<0.001	mg/L	0.001	EPA 200.7
CHROMIUM	<0.003	mg/L	0.003	EPA 200.7
COPPER	0.010	mg/L	0.004	EPA 200.7
LEAD	<0.020	mg/L	0.020	EPA 200.7
MOLYBDENUM	<0.003	mg/L	0.003	EPA 200.7
NICKEL	<0.004	mg/L	0.004	EPA 200.7
SELENIUM	0.047	mg/L	0.020	EPA 200.7
ZINC	0.065	mg/L	0.001	EPA 200.7

End of Report for Sample ID: SRP970116

Crawford

BRIDGEWATER GROUP, INC.

ROSS D. RIEKE, P.E.
4640 SW MACADAM, SUITE 222
PORTLAND, OR 97201
TEL: (503) 973-8068
FAX: (503) 973-8069
rieke@bridgeh2o.com

March 6, 2000

CRF001

Mr. Tom Gainer
Oregon Department of Environmental Quality
2020 SW Fourth Ave., Suite 400
Portland, OR 97201-4987

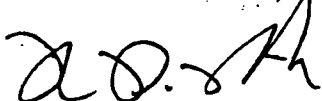
Subject: Crawford Street Corporation Site
Preliminary Assessment

Dear Mr. Gainer:

We have received your February 25, 2000 letter presenting DEQ's comments on the February 10, 2000, Crawford Street Preliminary Assessment report. We are reviewing your comments and are preparing our response. In your letter you requested that we respond to your comments and submit a revised report by April 1, 2000. As we discussed during our March 6, 2000 telephone conversation, vacations and the upcoming spring break will make it difficult to meet your requested schedule. In lieu of your proposed schedule, we requested that we respond to your comments by April 14, 2000. Based on our telephone conversations we understand that this schedule is acceptable to you. Thank you for your help and please call if any questions.

Sincerely,

BRIDGEWATER GROUP, INC.



Ross D. Rieke, P.E.
Vice President
Environmental Consultant

cc: Tom Zelenka/Crawford Street Corporation
Joan Snyder/Stoel Rives

CRAW00000495



Oregon

John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
Northwest Region Portland Office
2020 SW 4th Avenue, Suite 400
Portland, OR 97201-4987
(503) 229-5263
FAX (503) 229-6945
TTY (503) 229-5471

February 25, 2000

Crawford

Matt Cusma
Schnitzer Steel Industries
P.O. Box 10047
Portland, Oregon 97296-0047

RE: Crawford Street Corporation Site
8424 and 8524 N. Crawford Street
Portland, Oregon
Review of Preliminary Assessment

Dear Mr. Cusma:

Thank you for submitting the February 10, 2000 Preliminary Assessment (PA) of the above-referenced site. The PA addresses certain issues identified in the Department of Environmental Quality's (DEQ) October 1, 1999 Strategy Recommendation, however significant data gaps still exist. The expanded PA should include the information necessary to determine if a release of hazardous substances has occurred at the facility from current or historic operations and whether the release requires additional investigation or remedial action to assure protection of present and future public health, safety, welfare, and the environment. The DEQ has the following specific comments based on our review of the PA.

Section 2.1. Page 4. The location of the storm drain lines should be included on a site figure.

Sections 2.2.2, 2.2.3, 2.2.4, and 2.2.5. Pages 4 - 7. These sections state that various products (e.g., lubricating oils, water-based cutting oils, naphtha solvents) are used in current on-site operations. Material Safety Data Sheets for these products should be provided in the PA report and reviewed to identify contaminants of interest. The use, management, and disposal of these products should be presented. The processes in which the oils are used should be further described. Often after using these oils parts must be washed or cleaned to remove the oils. Please describe how the oils are removed and how any waste generated is managed. The management of used oil should be discussed in greater detail. For example, how long has the oil been recycled? By whom? Has a hazardous waste determination been performed?

Section 2.2.3. Page 6. What prompted the installation of filters within the catch basins?

Section 2.3. Page 8. The location of the 8-inch diameter pipe should be shown on an appropriate site figure.

RECEIVED
STOEL RIVES LLP
By 3/2/00 nl

CRAW00000496



Section 2.5. Page 10. The location of the 8-inch diameter pipe should be shown on an appropriate site figure.

Section 2.7.1. Page 10. This section suggests that subsurface investigations have occurred on the subject site. If so, a copy of the investigation report and boring logs should be submitted to DEQ or included as an attachment to the PA report.

Section 3. Pages 12 – 23. This section references various Sanborn Maps. These maps should be provided in the PA or pertinent features (e.g., former maintenance shops, tanks, and mills) shown on appropriate site maps.

Section 3. Pages 12 – 23. This section identifies numerous industrial uses (e.g., lumber mill, electrical generator, woolen mill, machine shop(s), foundry, plywood mill, planing mill, pattern shop, and maintenance operations) on various locations of the subject property. The main processes for each of these industrial uses should be identified and potential hazardous substances used or generated in these processes identified and screened for further evaluation.

Section 3.1.4. Page 15. The 1988 Sweet Edwards/Emcon report should be provided to DEQ. Without documentation (e.g., analytical results, boring logs), the stated findings are not meaningful and the statements raise a lot of questions. Questions include:

- This section states that "evidence of contamination" was not noted in groundwater. This statement raises questions about what was tested for (PAHs, VOCs, metals, PCBs?) and what the analytical detection limits were.
- Who was the former on-site worker? Who did they work for? What period of time were they on-site?
- What was the location of the underground storage tank? Was the release reported to DEQ? What analytical testing (TPH-HCID, solvents, metals, PCBs?) was performed to close the tank?
- What is the extent of the black sand? What analytical testing was performed to assess contamination associated with this sand? Although the black sand is reported to be from tank cleaning, confirmation for organotins should be conducted.
- How were test pits and soil boring locations selected?
- Where was the former septic tank and drain field? What facility did this serve? What analytical testing was performed?

Section 3.2.2.1. Page 17. The general maintenance operations performed in this facility should be determined. This information should be used to identify potential contaminants of interest (e.g., herbicides, petroleum products, fuels, paints, and solvents) for sampling activities.

Section 3.4.2. Page 21. The location of the referenced test pits, hand auger borings, and soil borings should be provided on an appropriate figure. Particularly, any sampling locations located on or in the immediate vicinity of the subject property should be identified.



Section 3.5.2. Page 22. The location of the "black fill material" reported west of the subject site should be shown on an appropriate figure. Is this material believed to have been placed at the same time as the material on the subject site? Are halogenated volatile organic compounds suspected in the on-site material?

Section 3.5.2. Page 23. Pentachlorophenol was detected in groundwater on the adjacent property. Potential on-site sources of pentachlorophenol should be evaluated (e.g., black sand and historical mill operations).

Section 4. Page 24. Potential Contaminant Sources. This section does not adequately assess potential sources of contamination on the CSC site or potential contamination migration or exposure pathways. The PA should evaluate potential contaminant sources and migration pathways from both historical and current site operations; it appears that historical operations were inappropriately excluded. The specific objective of a PA is to determine if a hazardous substance(s) has been released or has the potential to be released on the subject property. Potential contaminant source areas should be identified based on a review of historical site information and the results of environmental sampling, if conducted. The identification of potential source areas should include both upland and over or in water operations that may have resulted in a release of hazardous substances to soil, groundwater, surface water, and/or Willamette River sediments. Section 3 identifies numerous industrial uses (e.g., lumber mill, electrical generator, woolen mill, machine shop(s), foundry, plywood mill, planing mill, pattern shop, maintenance operations, imported fill) that may have used or generated hazardous substances. These areas and the types of contamination that could be present in each should be identified.

Section 4. Page 24. Potential Migration Pathways. The PA should identify and evaluate potential contaminant migration pathways (e.g., groundwater discharge; storm water discharge; direct release; volatilization, dust entrainment) and potentially affected media (e.g., groundwater, soil, Willamette River sediments, surface water) at the subject property.

Section 4. Page 24. Potential Exposure Pathways. The PA should identify and evaluate potential contaminant exposure pathways (e.g., ingestion, direct contact, inhalation) to humans and ecological receptors associated with the potentially affected media (e.g., groundwater, soil, Willamette River sediments, surface water) at the subject property.

Section 5. Page 28. The proposed sampling plan is not adequate to address potential concerns regarding the site. The sampling and analyses plan should be based on a conceptual site model that describes the potential sources of contamination, migration pathways, exposure routes, and contaminants of interest. The PA needs to take a broad approach of what could be present at the site, based on the specific site uses (both current and historical). The PA identifies the following potential contaminant source areas:

- Mills (planing, plywood, lumber)
- Electrical generator (transformers & capacitors?)
- Woolen mill
- Imported Fill (black sand)
- Various machine shops



- Auto repair
- Maintenance operations
- Metal forging, cleaning, machining, shaping, cutting, and painting

Potential contaminants of interest (COIs) may include, but are not limited to:

- Petroleum hydrocarbons (cutting oils, lube oils, used oil)
- Volatile Organic compounds (solvents, cleaning, degreasing, maintenance)
- Semivolatile Organic compounds (SVOCs), polycyclic aromatic hydrocarbons (PAHs)
- Metals (e.g., arsenic, copper, chromium, manganese, mercury, lead, zinc)
- Organotins
- PCBs
- Pentachlorophenol
- Herbicides

The proposed sampling plan needs to include analyses of COIs in current and historical process areas. The proposed plan assesses only potential shallow soil contamination due to storm water run off and infiltration. Both subsurface soil samples and groundwater grab samples should be collected from selected areas and screened for the COIs. Based on the extensive industrial history of the site, additional sampling is warranted to determine if a release(s) has occurred.

Section 5.3.2. Page 31. If composite sampling is proposed, the sample result must be multiplied by the number of subsamples for screening purposes. DEQ recommends that the subsamples be archived for future analyses in the event that the screening criteria are exceeded in the composite samples.

Section 5.3.4. Page 32. Following completion of the sampling activities and receipt of the analytical data, the laboratory results, photographs, boring logs, permits should be included as separate attachments to the final report.

Please address these comments and submit a revised document to DEQ by April 1, 2000. Thank you for your cooperation on this project.

Sincerely,

A handwritten signature in cursive script that reads "Tom Gainer".

Tom Gainer, P.E.
Project Manager



CC: Ross Rieke
Bridgewater Group, Inc.
4640 SW Macadam, Suite 222
Portland, Oregon 97201

Rod Struck, DEQ
ECSI File #2363

CRAWFORD STREET CORPORATION

3200 NW Yeon Ave PO Box 10047 Portland OR 97296-0047
Phone 503-224-9900 Fax 503-299-2277

Crawford
PO Box 10047

January 3, 2000

Department of Environmental Quality
Attention: Business Office
811 SW Sixth Avenue
Portland, OR 97204-1390

RE: Site Name: CRAWFORD STREET CORP.
Project No.: 25055000
Invoice No.: HSRAF00-0797

Dear Sir or Madam:

In the Voluntary Cleanup Agreement that Crawford Street Corporation executed, it agreed to pay reasonable costs recoverable by DEQ under ORS 465.255. Your invoice to us, however, did not include any detail by which we can determine what work was performed. Although we have paid your invoice by check No. 57263 dated 12/22/99, we would appreciate your following up by providing detail on the work performed.

Thank you for your assistance.

Sincerely,

Tom Zelenka

Tom Zelenka
Manager-Legislative/Environmental
and Public Affairs

TFZ/jdh
G:\TZ\DEQ LETTER.DOC

RECEIVED
STOEL RIVES LLP

By 1/5/00 ml

CRAW00000501



Oregon

John A. Kitzhaber, M.D., Governor

516
Crawford
Department of Environmental Quality

811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696
TDD (503) 229-6993

October 8, 1999

Mr. Robert Phillip
President
Crawford Street Corporation
3200 N.W. Yeon Street
Portland, Oregon 97210

Re: Crawford Street Site: Request for Performance of
Preliminary Assessment with Sampling

Dear Mr. Phillip:

This letter informs you of the results of our review of information regarding hazardous substance contamination at the Crawford Street facility located at 8424 N. Crawford Street in Portland, Oregon. The Oregon Department of Environmental Quality (DEQ) has determined that the Crawford Street site is a high priority for a preliminary assessment with sampling and requests that Crawford Street Corporation perform a preliminary assessment with sampling in accordance with the Environmental Cleanup Law, Oregon Revised Statutes (ORS) 465.200 *et seq.*

The Crawford Street facility is located within or near a portion of the Willamette River known as the Portland Harbor. A 1997 investigation revealed significant contamination of sediments within the harbor. DEQ has undertaken review of available information regarding properties throughout the harbor to identify potential sources of the sediment contamination. The results of DEQ's review for the Crawford Street facility are summarized in the enclosed Strategy Recommendation

Based on this review, DEQ has determined additional information is necessary to determine whether hazardous substances have been released or threaten to be released at the Crawford Street facility and come to be located in Willamette River sediments. The preliminary assessment with sampling will fully evaluate all upland, in-water and over-water activities that might have resulted in the release of hazardous substances and include sufficient sampling to assess whether hazardous substances have come to be located in Willamette River sediments at or near the Crawford Street facility. At a minimum, sampling will include the collection of surface and subsurface sediment samples at appropriate points adjacent to the Crawford Street facility.

RECEIVED
STOEL RIVES LLP

By 10/15/99 nh

DEQ-1

CRAW00000508

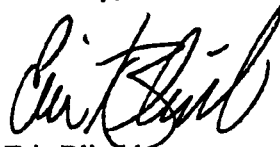
DEQ proposes that your performance of the preliminary assessment with sampling be governed by the enclosed Voluntary Cleanup Letter Agreement. The facility's preliminary assessment with sampling will be coordinated with harbor-wide sediments investigations currently being pursued by DEQ. This will require commencement of the preliminary assessment with sampling at the Crawford Street facility in the near future. DEQ therefore requests that you review the enclosed Strategy Recommendation and Voluntary Cleanup Letter Agreement, and inform DEQ whether you will perform a preliminary assessment with sampling by signing and returning one original of the enclosed Voluntary Cleanup Letter Agreement within 30 calendar days of mailing of this letter. Please retain one signed original for your records. It is DEQ's expectation that a preliminary assessment and sampling work plan will be completed and submitted to DEQ within six weeks of signing the Voluntary Cleanup Letter Agreement.

Should you not agree to perform the preliminary assessment with sampling by execution of the Voluntary Cleanup Letter Agreement, DEQ will assume you are not willing to perform the requested work. In this case, as with other facilities within the Portland Harbor, DEQ will complete the preliminary assessment with sampling itself, with subsequent cost recovery from liable parties.

Finally, please be advised that DEQ is required by ORS 465.330 to recover remedial action costs incurred by DEQ, including for site assessment activities. You will be receiving an invoice in the near future for DEQ's costs of preparing the Strategy Recommendation for the Crawford Street facility. Reimbursement of future DEQ costs will be provided through the Voluntary Cleanup Letter Agreement for the facility, if one is entered.

Please Contact me at 503 229-5648 if you have any questions regarding the enclosed Strategy Recommendation .

Sincerely,



Eric Blischke,
Coordinator
Portland Harbor Study Area
Waste Management and Cleanup Division

Enclosures

c: Kurt Burkholder, DOJ
Dave St. Louis, Manager, NWR Site Assessment Program
Mike Rosen, NWR Voluntary Cleanup Program
Gil Wistar, Coordinator, Site Assessment Program
ESCI File No.: 2363



Oregon

John A. Kitzhaber, M.D., Governor

Department of Environmental Quality

811 SW Sixth Avenue

Portland, OR 97204-1390

(503) 229-5696

TDD (503) 229-6993

October 6, 1999

Mr. Robert Phillip
President
Crawford Street Corporation
3200 N.W. Yeon Street
Portland, Oregon 97210

SUBJECT: Voluntary Cleanup Letter Agreement

Dear Mr. Phillip:

This letter serves as an agreement between the Oregon Department of Environmental Quality (DEQ) and Crawford Street Corporation for performance of a preliminary assessment with sampling regarding hazardous substances at your property located at: 8424 N. Crawford Street in Portland, Oregon.

You agree to perform a preliminary assessment and submit it to DEQ within 30 business days of your execution of this Letter Agreement. The preliminary assessment will provide the information described in DEQ guidance for the completion of a preliminary assessment and a proposed sampling program. DEQ will review documents submitted by you or on your behalf regarding the preliminary assessment and investigation of the above referenced site.

A sub-account of the Hazardous Substances Remedial Action Fund has been established to be drawn upon by DEQ as project costs are incurred. When you have signed this letter agreement, you will be invoiced monthly for DEQ project costs, including the costs of preparing the DEQ strategy recommendation and any ongoing review and oversight costs. You will pay DEQ invoices within 30 days of receipt. A sample invoice is attached.

DEQ project costs will include direct costs and indirect costs. Direct costs include site-specific expenses and legal costs. Indirect costs are those general management and support costs of the DEQ and of the Waste Management and Cleanup Division (WMCD) allocable to DEQ oversight of this Letter Agreement which are not charged as direct, site-specific costs. Review and oversight costs shall not include any unreasonable costs or costs not otherwise recoverable by DEQ under ORS 465.255.

DEQ-1

CRAW00000510

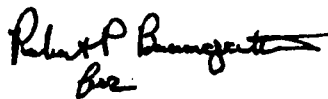
Voluntary Cleanup Letter Agreement
Page 2

This Letter Agreement is not and shall not be construed as an admission by Crawford Street Corporation of any liability under ORS 465.255 or any other law or as a waiver of any defense to such liability. This Letter Agreement is not and shall not be construed as a waiver, release or settlement of claims DEQ may have against Crawford Street Corporation or any other person or as a waiver of any enforcement authority DEQ may have with respect to Crawford Street Corporation or the property. Upon DEQ's request and as necessary to oversight of your work under this Letter Agreement, Crawford Street Corporation shall provide DEQ with data and records related to investigation and cleanup activities at the property, excluding any privileged documents identified as such by you.

Following execution of the letter agreement, a DEQ Project Manager will be assigned for the review of the preliminary assessment and oversight of investigation activities associated with your property.

DEQ looks forward to working with you.

Sincerely,

A handwritten signature in black ink, appearing to read "Neil Mullane", with a stylized flourish at the end.

Neil Mullane
Administrator
Northwest Region

Voluntary Cleanup Letter Agreement
Page 3

If the terms of this Letter Agreement are acceptable to Crawford Street Corporation, please have it executed by an authorized representative in the space provided below and returned to us.

Accepted and agreed to this _____ day of _____,

By: _____

Title: _____

Attachment

DEQ SITE ASSESSMENT PROGRAM - STRATEGY RECOMMENDATION


Site Name: Crawford Street Corporation, including:
Columbia Forge and Machine Works, Inc.
Lampros Steel, Inc.
TLS Steel Products, Inc.

Site CERCLIS Number: (none)

DEQ ECSI Number: 2363 —

Site Address: 8424 N. Crawford Street
Portland, Oregon 97203

Recommendation By: Tom Gainer, Voluntary Cleanup and
Site Assessment Section, DEQ Northwest
Region

Approved By: Michael E. Rosen, Portland Harbor
Manager, DEQ Northwest Region  FOR HER

Date: October 1, 1999

NOTE: This site (Figure 1) is within a 6-mile stretch of the Lower Willamette River in which the U.S. Environmental Protection Agency (EPA) conducted a sediment study in 1997. This area, referred to as the *Portland Harbor*, is between the upstream ends of Sauvie Island (River Mile 3.5) and Swan Island (RM 9.5). The purpose of this Strategy Recommendation is to determine whether a specific hazardous substance release or a specific past operation at the site can be linked to contamination documented by EPA in sediments adjacent to the site. Because of this focus, the Strategy Recommendation may omit some historical site information, regulatory issues, or further-action conclusions that might otherwise be included in a DEQ Strategy Recommendation.

Background, Portland Harbor Sediment Evaluation

In September and October 1997, EPA's contractor, Roy F. Weston, Inc., collected 187 near-shore sediment samples within the Portland Harbor area defined above. Most samples (150) were collected as shallow grab samples within the upper 6 to 17 centimeters (cm) of sediments. 37 deeper composite core samples, from depths of between 55 and 139 cm, were also collected. All samples were analyzed for total metals, semi-volatile organic compounds (SVOCs), total organic

carbon (TOC), and sediment grain size. Selected samples were also variously analyzed for organotins (TBTs), pesticides, polychlorinated biphenyls (PCBs), chlorinated herbicides, and polychlorinated dioxins and dibenzofurans.

Based on analytical results from this study, which showed extensive sediment contamination, EPA is currently considering Portland Harbor for inclusion on the federal National Priority List (NPL - also known as Superfund).

Between late 1998 and mid-1999, DEQ examined EPA's analytical data to determine potential sources for sediment contamination in the Harbor. Potential sources associated with the most contaminated areas of sediment were sites already active in DEQ's Cleanup Programs.

DEQ categorized other areas of sediment contamination (i.e., those areas not thought to be associated with active Cleanup Program sites) by defining the areas:

- having the highest detected concentration of a given contaminant;
- with contaminant concentrations in the upper five percent of a given contaminant's detected concentrations; and
- having contaminant concentrations above an apparent "baseline range" most commonly detected throughout the harbor area.

DEQ categorized in this manner because there are no established freshwater sediment contaminant concentration guidelines or well-defined background contaminant concentrations for the harbor area. The contaminant "baseline range" was developed by examining the geometric distribution of concentrations for each contaminant detected. Any sediment concentrations that appeared to depart significantly from the ranges most commonly detected were suspected of lying near a potential contaminant source.

One shallow sediment sample (SD060) was collected adjacent to the Crawford Street site (Figure 2). As shown on Table 1, contaminant concentrations in sample SD060 that exceed Portland Harbor baseline concentrations include: arsenic, lead, mercury, di-n-butylphthalate, low- and high-molecular weight polynuclear aromatic hydrocarbons (LPAHs and HPAHs, respectively), and organotins.

Shallow sediment sample SD058 collected downstream of the subject property only had elevated levels of di-n-butylphthalate. This suggests that shallow sediment contamination adjacent to the subject property has not migrated beyond the SD058 location..

Shallow sediment sample SD066 collected upstream of the subject property had elevated levels of mercury, zinc, 2-methylnaphthalene, LPAHs, and HPAHs. This suggests that an upstream source may have contributed to the mercury, LPAH, and HPAH sediment contamination observed adjacent to the subject property. The Willamette Cove site is adjacent upstream of the subject site and has an extensive history of industrial activities.

Operational History

The subject site is approximately 15 acres and is divided into two — portions by railroad tracks. There are currently three businesses that operate on the northern portion of the subject property: Columbia Forge and Machine Works, Inc. (CFM), Lampros Steel, Inc., and TLS Steel Products, Inc. The southern portion of the site adjacent to the Willamette River is currently used to store steel; it is not clear which of the three businesses use the southern portion, although it appears that it is used primarily by Lampros Steel.

work
w/
plan

CFM has produced metal forgings and stampings on the site since 1971. Their operation consists of three buildings and two yards. They use oil, lubricants, non-halogenated petroleum solvent, and degreasers that are sent offsite for recycling and/or disposal.

Lampros Steel has operated a structural steel distribution center since 1989, which includes off-loading railcars and trucks, cutting steel with saws, and loading outgoing trucks. Steel scrap is recycled, used motor oil is sent offsite, and synthetic saw coolant is reused or recycled on site. They have one 1,000-gallon aboveground diesel tank, located about 500 feet from the Willamette River.

TLS has operated a small steel forging and fabrication business since 1989. Hydraulic oil is used in their machines.

Crawford Street Corp. acquired the subject property from the Skookum Logging Supply Company in 1971. Aerial photographs indicate that the current buildings on the subject property were constructed between 1957 and 1963. The southern portion of the site was extensively covered by buildings with docks in photographs from 1936 through 1963; it appears that these structures were removed sometime between 1963 and 1977. Fire insurance maps from 1950 indicate that the property was used primarily by Portland Lumber Mills, and also by the Plylock Corp. (manufacturing with wood), Portland Chain Manufacturing Co., and Skookum Logging Supply Co.

Regulatory History

Spills

In May 1987, a transformer capacitor at CFM overheated and leaked several ounces of PCB-containing oil. The spill was contained and PCB-impacted material, including the transformer, was shipped offsite for disposal.

Information provided by CFM and TLS indicates that they have minor (less than one gallon) spills of hydraulic, motor, or lubricating oil from machinery on to concrete. These spills are apparently cleaned up and have not caused impacts to soil or groundwater.

Lampros claims they have had no spills.

Underground Storage Tanks (USTs)

Two 1,000-gallon USTs, one containing gasoline and the other containing used oil, were decommissioned at the CFM site in December 1987. According to CFM, contamination was apparently not observed during decommissioning activities, which predates DEQ UST record-keeping.

Water Quality

CFM was issued an NPDES permit on October 7, 1992 and it was terminated on October 20, 1992, apparently because a permit was not required at that facility. A CFM stormwater sample collected and analyzed for metals by the Portland Bureau of Environmental Services in June 1997 detected low concentrations of copper (0.010 milligrams per liter), selenium (0.047 mg/L), and zinc (0.065 mg/L).

There are no water discharge permits on file for Lampros or TLS.

Hazardous Waste

CFM operates as a conditionally exempt small quantity hazardous waste generator and appears to be in compliance.

Lampros and TLS are not registered as hazardous waste generators at DEQ.

Site Hydrogeology

The site lies in the northern-most Portland Basin, a major north-southeast trending sediment filled structural depression found in the northern part of the Willamette River valley and adjoining Columbia River valley (Swanson et al, 1993). The basin is filled with recent alluvium, Pleistocene cataclysmic flood deposits, Miocene to Holocene nonmarine sedimentary rocks, and is underlain by Eocene to Miocene volcanic and sedimentary rocks that are exposed along the basin margins.

The youngest deposits are recent alluvium (silt, sand and gravel mixtures) characteristic of an active fluvial environment. These are made up of shoreline, river channel, and adjacent floodplain deposits.

Terraces that rise 50 to 100 feet above the northeastern shore of the Willamette were formed during Pleistocene cataclysmic flooding related to glacial Lake Missoula, and consist of unconsolidated mixtures of silt, sand, and gravel that generally are coarser than the recent deposits. Fill comprised of fine to medium sands and silt was also placed in many areas along the river during site development. The total thickness of recent alluvium and flood deposits appears to be about 100 feet in the vicinity of the site.

Coarse gravel to conglomerate of the Troutdale Formation, deposited by the ancestral Columbia River, underlies the cataclysmic flood deposits and appears to be about 100 feet thick in the vicinity of the site. Sandy River mudstone underlies the Troutdale Formation and appears to be about 100 feet thick. Basalt of the Columbia River Basalt (CRB) group forms the basement rock of the Portland Basin, and may be as much as several hundred feet thick in the vicinity of the site.

Aquifers in the unconsolidated sedimentary deposits generally are unconfined and localized due to heterogeneity of the deposits. The Troutdale Formation is an important regional aquifer and is widely tapped for both potable and non-potable uses. Interbedded Claystone and/or siltstone, or cementation often promotes confined aquifer conditions within the Troutdale Formation. Deep wells installed in fractured CRB can be very productive and important supply wells. Site elevation is about 30 feet above mean sea level.

Pathway Summary

The Crawford Street site lies in an area of mixed industrial, commercial, and residential use. Approximately 123 residences lie within 1/4 mile of the facility.

Site workers at the facility or trespassers could be exposed to contaminants in surface soil. Utility trench workers could potentially be exposed to subsurface contaminants through direct contact, inhalation, or incidental ingestion.

Oregon Water Resources Department has no well logs for domestic wells within one-half mile of the Crawford Street site.

The nearest significant wetland is located three miles downstream of the subject site at the mouth of Multnomah Channel. Cathedral Park is approximately 1,000 feet downstream of the subject site. Both recreational and subsistence fishing occur within the Lower Willamette River. Commercial fishing within the Portland Harbor is limited to a small Pacific lamprey fishery. Recreational boating, water skiing, swimming, and beach use also occur within the Harbor.

The Lower Willamette River provides habitat for 39 fish species, including populations of wild cutthroat trout, rainbow trout, and mountain whitefish. White sturgeon are plentiful within the Harbor. The Harbor is also an important migratory corridor, nursery habitat, and adult foraging area for two runs of chinook salmon, two runs of steelhead trout, and individual runs of coho and sockeye salmon.

Upper Willamette River populations of chinook and steelhead, which migrate through the Harbor, are listed as threatened species under the Federal Endangered Species Act. The Pacific lamprey is considered a federal species of concern.

Great blue herons, cormorants, osprey, mergansers, kingfishers, peregrine falcons, and bald eagles routinely forage within the Harbor. The area is also part of the wintering range for the Aleutian Canada goose. All are protected under the Migratory Bird Treaty Act. The peregrine falcon is federally listed as an endangered species, while the Aleutian Canada goose is federally listed as threatened species. The bald eagle also is a threatened species, but was recently proposed to be removed from this list.

There is little data on the nature and extent of the benthic community within Portland Harbor sediments. However, it is known that contamination in the benthos, which is a protected beneficial use, can be the source of food-chain effects that radiate up to the species listed above, including humans.

The Lower Willamette River is water quality limited for the following toxic compounds:

- Dioxins/furans (water column and sediments);
- Mercury (fish tissue);
- Pesticides (water column and sediments);
- Polynuclear Aromatic Hydrocarbons - PAHs - (water column and sediments); and
- Trace metals (water column and sediments).

DEQ's Water Quality Division is developing Total Maximum Daily Load requirements (TMDLs) within the lower Willamette River for these contaminants. A TMDL for 2,3,7,8-TCDD was established in 1991.

Conclusions/Recommendations

NOTE: As indicated previously, this review is limited to establishing a link between site activities and contamination in adjacent Portland Harbor sediments. It does not necessarily represent a thorough review of available site data, and the conclusions and recommendations presented below may reflect this limited focus.

The following conclusions are based on the contents of this review:

- Site activities may have resulted in sediment contamination adjacent to the site. Concentrations of sediment contaminants adjacent to the site that exceed Portland Harbor baseline levels include arsenic, lead, mercury, di-n-butylphthalate, LPAHs, HPAHs, and organotins. PAH contaminants found in the sediment are associated with handling/storage of petroleum products, metals are associated with fabrication activities, and organotins are associated with boat painting maintenance (possibly from historical dock activities or by migration from upland use/storage of organotin-based paints on metal).
- It appears that the subject site is the source of organotins contamination observed adjacent to the site, where the concentration is over twice the Portland Harbor baseline value and 55 times the upstream concentration.
- Contaminant concentrations for mercury, LPAHs, and HPAHs observed in the upstream sediment sample are generally equal to or greater than in the sample adjacent to the Crawford Street site. This suggests that historical activities at the upstream adjacent Willamette Cove site may have contributed towards contamination observed adjacent to the subject site.
- Use of the site's historical docks, possibly for conveyance of materials and boat fueling and maintenance, is a possible source of sediment contamination by routine or accidental activities.

Contamination of river sediments adjacent to the Crawford Street site may represent a threat to human health and aquatic life within the river. An Expanded Preliminary Assessment (XPA) on the entire Crawford Street property (CFM, Lampros, TLS, and the southern portion of the property) should be conducted to evaluate sediment contamination, potential upland site contaminant sources, and past waste management practices and to determine the extent and source(s) of observed sediment contamination. Sediment sampling should include subsurface samples to further define the extent of contamination. As necessary, the XPA should present recommendations

aimed at preventing potential further contamination of adjacent sediment. DEQ has determined that these actions warrant a high priority for follow-up.

[There is insufficient information to propose adding the site to DEQ's Confirmed Release List or Inventory.

References

DEQ consulted the following general references in preparing this Strategy Recommendation:

1. Portland Harbor Sediment Investigation Report, prepared by Roy F. Weston, Inc. for USEPA, May 1998.
2. Columbia Forge and Machine Works, Inc. response to DEQ Site Assessment Information Request, April 9, 1999.
3. Lampros Steel, Inc. response to DEQ Site Assessment Information Request, March 15, 1999.
4. TLS Steel Products, Inc. response to DEQ Site Assessment Information Request, March 19, 1999.
5. DEQ LUST Database.
6. DEQ HWIMSy Hazardous Waste Generator Database.
7. DEQ SPINS Spill Database.
8. MetroScan Property Records, Multnomah County, Oregon.

Attachments

Table 1: River Sediment Contaminant Concentrations

Figure 1: Site Location Map

Figure 2: Sediment Sampling Points, 1997 Portland Harbor Sediment Investigation

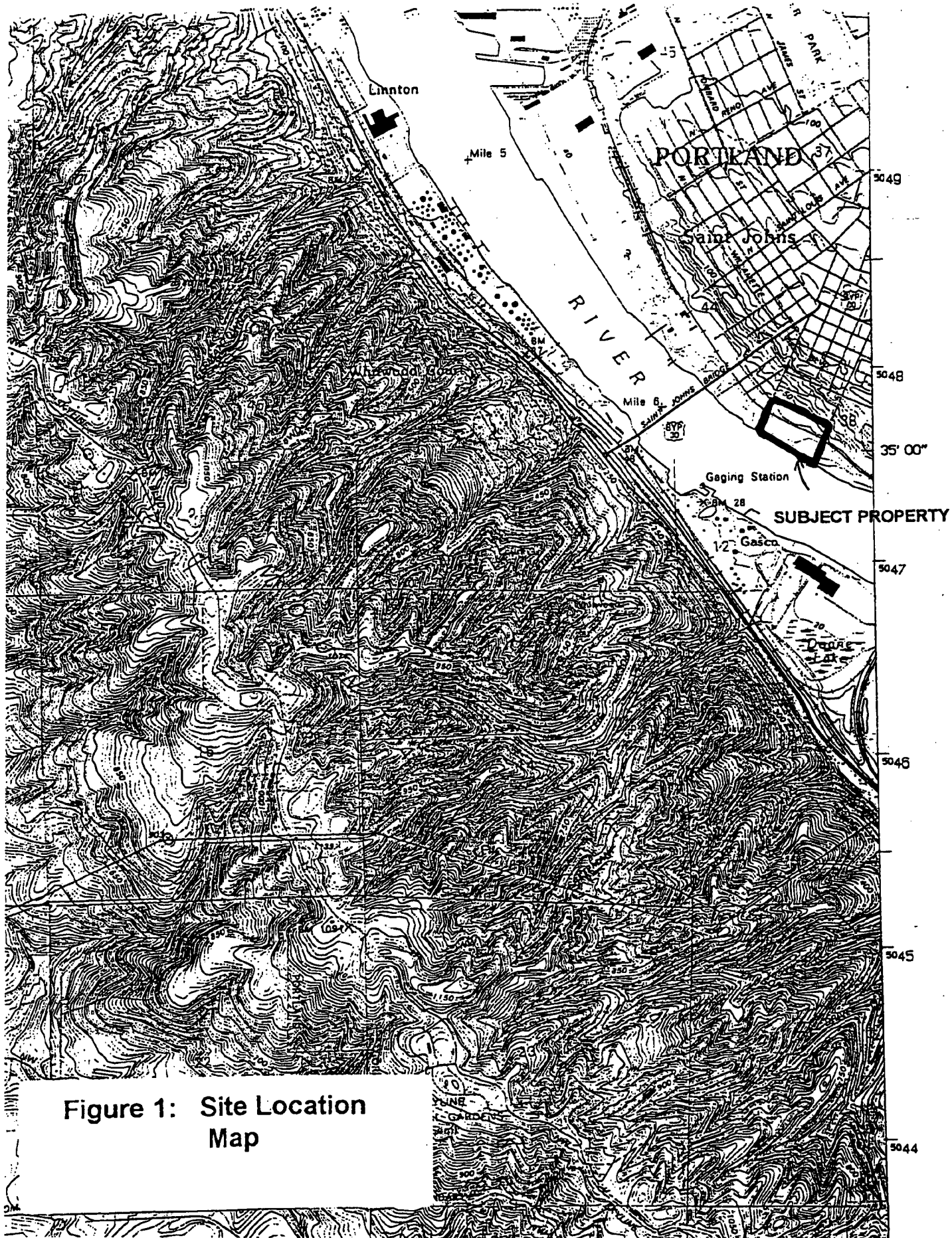


Figure 1: Site Location Map

TABLE 1

River Sediment Contaminant Concentrations (1997) Crawford Street Corporation

Contaminant	Units	Down-Stream SD058	Crawford Street SD060	Up-Stream SD066	Apparent Portland Harbor Sediment Baseline Maximum Value
Aluminum	ppm	22800	24700	33200	42800
Antimony	ppm	<4	NA	NA	<5
Arsenic	ppm	<4	5	5	<5
Barium	ppm	128	152	163	195
Beryllium	ppm	0.4	0.5	0.6	0.7
Cadmium	ppm	0.3	0.4	0.5	0.6
Chromium	ppm	25	28	35	41
Cobalt	ppm	16	11	18	19.7
Copper	ppm	30	50	41	60
Iron	ppm	31700	32700	37600	45000
Lead	ppm	13	36	28	30
Manganese	ppm	322	397	547	810
Mercury	ppm	0.1	0.14	0.23	0.1
Nickel	ppm	24	21	29	32
Selenium	ppm	11	12	11	15
Silver	ppm	0.7	0.8	1.0	1.4
Thallium	ppm	5	<4	<4	13
Titanium	ppm	1850	NA	1910	2075
Vanadium	ppm	80	85	98	112
Zinc	ppm	87	112	158	118
2-Methylnaphthalene	ppb	37	68	180	150
4-Methylphenol	ppb	50	230	130	680
Benzoic Acid	ppb	<200	<200	<190	<200
Benzyl Alcohol	ppb	<20	<20	<19	<20
bis(2-Ethylhexyl)phthalate	ppb	<80	<190	<88	390
Butylbenzylphthalate	ppb	<20	<20	<19	<20
Carbazole	ppb	48	99	<19	100
Di-N-Butylphthalate	ppb	43	34	<19	<20
Di-N-Octylphthalate	ppb	<20	<20	<19	<20
Dibenzofuran	ppb	24	33	57	100
Dimethylphthalate	ppb	<20	<20	<19	<20
Pentachlorophenol	ppb	<99	<99	<96	Detect
Phenol	ppb	<20	<20	<19	<20
LPAHs (total)	ppb	379	873	1904	700
HPAHs (total)	ppb	2333	4448	4481	2400
DDTs (total)	ppb	4.1	NA	7.5	220
PCBs (total)	ppb	<40	NA	54	<180
Organotins (total)	ppb	170	773	14	300
2,4-D	ppb	NA	NA	NA	<3.3
2,4-DB	ppb	NA	NA	NA	<5
TOC	%	2.6	0.9	1.6	2
Water Depth	ft	45	9	17	
Sediment Sample Depth	cm	0-10	0-10	0-10	

NA = Not Analyzed

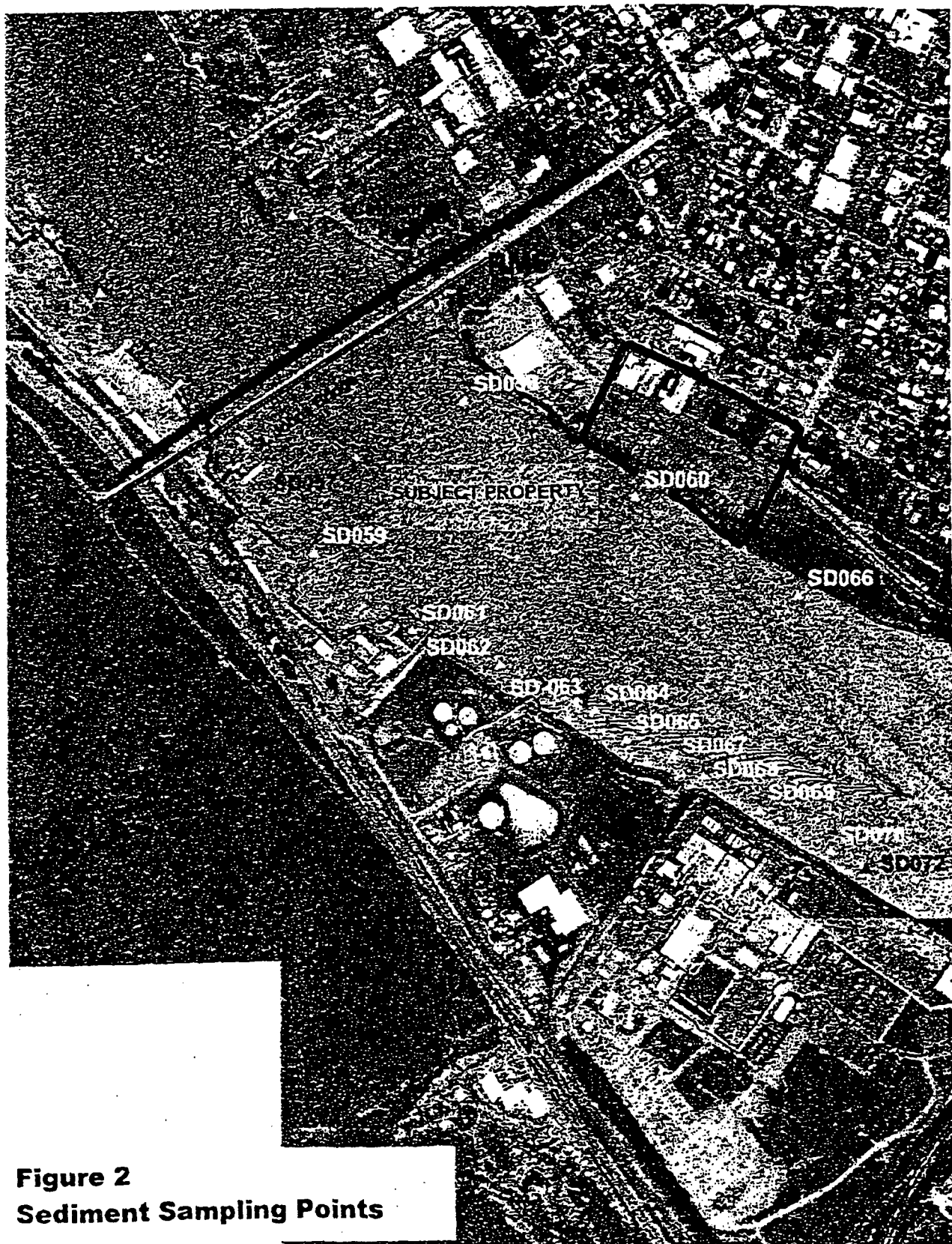


Figure 2
Sediment Sampling Points



Oregon

John A. Kitzhaber, M.D., Governor

Department of Environmental Quality

811 SW Sixth Avenue
Portland, OR 97204-1390

(503) 229-5696

TDD (503) 229-6993

October 6, 1999

Mr. Robert Phillip
President
Crawford Street Corporation
3200 N.W. Yeon Street
Portland, Oregon 97210

SUBJECT: Voluntary Cleanup Letter Agreement

Dear Mr. Phillip:

This letter serves as an agreement between the Oregon Department of Environmental Quality (DEQ) and Crawford Street Corporation for performance of a preliminary assessment with sampling regarding hazardous substances at your property located at: 8424 N. Crawford Street in Portland, Oregon.

You agree to perform a preliminary assessment and submit it to DEQ within 30 business days of your execution of this Letter Agreement. The preliminary assessment will provide the information described in DEQ guidance for the completion of a preliminary assessment and a proposed sampling program. DEQ will review documents submitted by you or on your behalf regarding the preliminary assessment and investigation of the above referenced site.

A sub-account of the Hazardous Substances Remedial Action Fund has been established to be drawn upon by DEQ as project costs are incurred. When you have signed this letter agreement, you will be invoiced monthly for DEQ project costs, including the costs of preparing the DEQ strategy recommendation and any ongoing review and oversight costs. You will pay DEQ invoices within 30 days of receipt. A sample invoice is attached.

DEQ project costs will include direct costs and indirect costs. Direct costs include site-specific expenses and legal costs. Indirect costs are those general management and support costs of the DEQ and of the Waste Management and Cleanup Division (WMCD) allocable to DEQ oversight of this Letter Agreement which are not charged as direct, site-specific costs. Review and oversight costs shall not include any unreasonable costs or costs not otherwise recoverable by DEQ under ORS 465.255.

**A TRUE COPY
STCEL RINES**

By 11/10/99 sh

DEQ-1

CRAW00000524

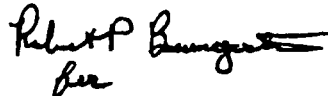
Voluntary Cleanup Letter Agreement
Page 2

This Letter Agreement is not and shall not be construed as an admission by Crawford Street Corporation of any liability under ORS 465.255 or any other law or as a waiver of any defense to such liability. This Letter Agreement is not and shall not be construed as a waiver, release or settlement of claims DEQ may have against Crawford Street Corporation or any other person or as a waiver of any enforcement authority DEQ may have with respect to Crawford Street Corporation or the property. Upon DEQ's request and as necessary to oversight of your work under this Letter Agreement, Crawford Street Corporation shall provide DEQ with data and records related to investigation and cleanup activities at the property, excluding any privileged documents identified as such by you.

Following execution of the letter agreement, a DEQ Project Manager will be assigned for the review of the preliminary assessment and oversight of investigation activities associated with your property.

DEQ looks forward to working with you.

Sincerely,

A handwritten signature in dark ink, appearing to read "Neil Mullane", with a stylized flourish at the end.

Neil Mullane
Administrator
Northwest Region

Voluntary Cleanup Letter Agreement
Page 3

If the terms of this Letter Agreement are acceptable to Crawford Street Corporation, please have it executed by an authorized representative in the space provided below and returned to us.

Accepted and agreed to this 8th day of November, 1999. **

By: 
Barry A. Rosen

Title: Vice President

Attachment

** Crawford Street Corporation will perform such preliminary assessment activities and reimburse Oregon DEQ for such costs as Oregon DEQ has a statutory right to require from it under the Environmental Cleanup Law, Oregon Revised Statutes 465.200 et seq. Crawford Street Corporation notes that: (1) DEQ's Strategy Recommendation concludes that it has insufficient information to propose adding the site to DEQ's confirmed Release List or Inventory, and DEQ's October 8, 1999 letter states that DEQ is unable to determine whether hazardous substances have been released or are threaten to be released from the subject property; and (2) DEQ's Strategy Recommendation (which contains several factual inaccuracies) refers to historical dock activities, which have not occurred during the time period of Crawford Street Corporation's ownership of the property. Crawford Street Corporation reserves the right to withdraw from this voluntary agreement upon ten days notice to Oregon DEQ.

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
SITE ASSESSMENT ACTION - Northwest REGION

Facility Name: Crawford Street Corp. ECSI #: 2363
Address: 8424 N. Crawford St.
Portland OR 97203
PRP:
Company: Crawford Street Corp.
Name: Robert Phillip - President Phone: (503) 286-3621
Address: 3200 NW 11th Year St.
Portland, OR 97210
Action Date: 10/1/99
Report Type: Strategy Recommendation

Preliminary Assessment:

☐ State ☐ Federal ☐ Voluntary ☐ PAE ☐ IPA

Screening:

☒ State ☐ Federal ☐ Spill

Note: Spill screenings may not require Strategy Recommendation

Recommended Action:

☐ NFA [Need management approval]
☐ Add to CRL
☐ Add to Inventory
☐ High Priority--Requires immediate response
☒ Other
Describe: High Priority X PA

Report Writer: Tom Gainer

Headquarters

EPA

Other

Transmittal Date(s):

Report Supplement(s):

Sample
Analysis

Photos

Operating
Plans

Other

Supplemental Date(s):

Checklist:

☒ Strategy Recommendation ☐ Letter to RP ☒ SAPS ☒ Map
☒ Data (if applicable) ☐ Spill Report (if applicable)
☐ Site Report

Manager's approval: _____

SITE ASSESSMENT PRIORITIZATION SYSTEM (SAPS) - SCORESHEET

Site Name: Crawford Street Corp.

Site Address: 8424 N. Crawford St.
Portland, OR 97203

ECSI Number: 2363

EPA ID Number:

Site Evaluator: Tom Gainer

Date: 10/1/99

	<u>HIGH THREAT</u>	<u>MEDIUM THREAT</u>	<u>LOW THREAT</u>	<u>NO THREAT</u>	<u>CONF. VALUE</u>
1. Potential to Release (Route Characteristics)					
a. Haz. Sub. Containment	9	⑥	3	0	<u>B</u>
b. Depth To Aquifer	⑥	4	2	0	<u>B</u>
c. Distance to DW Well	6	⑤	2	0	<u>B</u>
d. Soil Permeability	④	2	1	0	<u>B</u>
e. Distance to Surface Water	⑥	4	2	0	<u>A</u>
2. Haz. Sub. Characteristics					
a. Source Quantity	9	⑥	3	0	<u>B</u>
b. Toxicity/Persistence	⑥	6	3	0	<u>A</u>
c. Water Solubility	⑥	2	1	0	<u>A</u>
3. Exposure Potential					
a. Groundwater Use	9	6	③	0	<u>B</u>
b. Land Use/Population	⑤	4	2	0	<u>A</u>
c. Surface Water Use	9	⑥	3	0	<u>B</u>
d. Sensitive Environments	⑥	4	2	0	<u>A</u>
e. Direct Contact	6	④	2	0	<u>B</u>
4. Evaluator Assessment of Threat	13	⑨	5	0	—

- Add the circled numbers to get the total SAPS score -

Confirmed Release ___ Y X N

Total SAPS Score = 75 (out of 100 possible points)

Priority Associated with Score = M (H, M, L)

DISCUSSION:

Discuss your overall impression of the threat posed by the site. Include brief discussion of major factors such as potential or known releases, waste quantity, human and environmental targets, and use of nearby groundwater or surface water. Also discuss any important factors or considerations not addressed in the SAPS scoresheet. Discuss whether you feel the SAPS score generated for the site reflects the overall threat posed by the site to the surrounding population and environment.

The following contaminants were elevated above Portland Harbor baseline concentrations in sediment samples collected adjacent to the subject site: arsenic, lead, mercury, di-n-butylphthalate, low- and high-molecular weight polynuclear aromatic hydrocarbons, and organotins. The subject site may have contributed to observed sediment contamination, with possible contaminant contribution from the adjacent upstream property (Willamette Con.

Although the score indicates a medium priority, the priority is considered high because the Lower Willamette River represents a valuable resource for recreation and fish and wildlife habitat.

RECOMMENDATION:

- ☒ Further Action - High Priority
- ☐ Further Action - Medium Priority
- ☐ Further Action - Low Priority
- ☐ No Further Action
- ☐ Refer To _____ for further consideration
- ☐ Other: _____

LISTING RECOMMENDATION

- ☐ Recommend proposal on Confirmed Release List
- ☐ Recommend proposal on Inventory
- ☒ Insufficient information to list on the Confirmed Release List
- ☒ Insufficient information to list on the Inventory
- ☐ Excluded from listing

DEQ SITE ASSESSMENT PROGRAM - STRATEGY RECOMMENDATION


Site Name: Crawford Street Corporation, including:
Columbia Forge and Machine Works, Inc.
Lampros Steel, Inc.
TLS Steel Products, Inc.

Site CERCLIS Number: (none)

DEQ ECSI Number: 2363

Site Address: 8424 N. Crawford Street
Portland, Oregon 97203

Recommendation By: Tom Gainer, Voluntary Cleanup and
Site Assessment Section, DEQ Northwest
Region

Approved By: Michael E. Rosen, Portland Harbor
Manager, DEQ Northwest Region  FOR HER

Date: October 1, 1999

NOTE: This site (Figure 1) is within a 6-mile stretch of the Lower Willamette River in which the U.S. Environmental Protection Agency (EPA) conducted a sediment study in 1997. This area, referred to as the *Portland Harbor*, is between the upstream ends of Sauvie Island (River Mile 3.5) and Swan Island (RM 9.5). The purpose of this Strategy Recommendation is to determine whether a specific hazardous substance release or a specific past operation at the site can be linked to contamination documented by EPA in sediments adjacent to the site. Because of this focus, the Strategy Recommendation may omit some historical site information, regulatory issues, or further-action conclusions that might otherwise be included in a DEQ Strategy Recommendation.

Background, Portland Harbor Sediment Evaluation

In September and October 1997, EPA's contractor, Roy F. Weston, Inc., collected 187 near-shore sediment samples within the Portland Harbor area defined above. Most samples (150) were collected as shallow grab samples within the upper 6 to 17 centimeters (cm) of sediments. 37 deeper composite core samples, from depths of between 55 and 139 cm, were also collected. All samples were analyzed for total metals, semi-volatile organic compounds (SVOCs), total organic

carbon (TOC), and sediment grain size. Selected samples were also variously analyzed for organotins (TBTs), pesticides, polychlorinated biphenyls (PCBs), chlorinated herbicides, and polychlorinated dioxins and dibenzofurans.

Based on analytical results from this study, which showed extensive sediment contamination, EPA is currently considering Portland Harbor for inclusion on the federal National Priority List (NPL - also known as Superfund).

Between late 1998 and mid-1999, DEQ examined EPA's analytical data to determine potential sources for sediment contamination in the Harbor. Potential sources associated with the most contaminated areas of sediment were sites already active in DEQ's Cleanup Programs.

DEQ categorized other areas of sediment contamination (i.e., those areas not thought to be associated with active Cleanup Program sites) by defining the areas:

- having the highest detected concentration of a given contaminant;
- with contaminant concentrations in the upper five percent of a given contaminant's detected concentrations; and
- having contaminant concentrations above an apparent "baseline range" most commonly detected throughout the harbor area.

DEQ categorized in this manner because there are no established freshwater sediment contaminant concentration guidelines or well-defined background contaminant concentrations for the harbor area. The contaminant "baseline range" was developed by examining the geometric distribution of concentrations for each contaminant detected. Any sediment concentrations that appeared to depart significantly from the ranges most commonly detected were suspected of lying near a potential contaminant source.

One shallow sediment sample (SD060) was collected adjacent to the Crawford Street site (Figure 2). As shown on Table 1, contaminant concentrations in sample SD060 that exceed Portland Harbor baseline concentrations include: arsenic, lead, mercury, di-n-butylphthalate, low- and high-molecular weight polynuclear aromatic hydrocarbons (LPAHs and HPAHs, respectively), and organotins.

Shallow sediment sample SD058 collected downstream of the subject property only had elevated levels of di-n-butylphthalate. This suggests that shallow sediment contamination adjacent to the subject property has not migrated beyond the SD058 location.

Shallow sediment sample SD066 collected upstream of the subject property had elevated levels of mercury, zinc, 2-methylnapthalene LPAHs, and HPAHs. This suggests that an upstream source may have contributed to the mercury, LPAH, and HPAH sediment contamination observed adjacent to the subject property. The Willamette Cove site is adjacent upstream of the subject site and has an extensive history of industrial activities.

Operational History

The subject site is approximately 15 acres and is divided into two portions by railroad tracks. There are currently three businesses that operate on the northern portion of the subject property: Columbia Forge and Machine Works, Inc. (CFM), Lampros Steel, Inc., and TLS Steel Products, Inc. The southern portion of the site adjacent to the Willamette River is currently used to store steel; it is not clear which of the three businesses use the southern portion, although it appears that it is used primarily by Lampros Steel.

CFM has produced metal forgings and stampings on the site since 1971. Their operation consists of three buildings and two yards. They use oil, lubricants, non-halogenated petroleum solvent, and degreasers that are sent offsite for recycling and/or disposal.

Lampros Steel has operated a structural steel distribution center since 1989, which includes off-loading railcars and trucks, cutting steel with saws, and loading outgoing trucks. Steel scrap is recycled, used motor oil is sent offsite, and synthetic saw coolant is reused or recycled on site. They have one 1,000-gallon aboveground diesel tank, located about 500 feet from the Willamette River.

TLS has operated a small steel forging and fabrication business since 1989. Hydraulic oil is used in their machines.

Crawford Street Corp. acquired the subject property from the Skookum Logging Supply Company in 1971. Aerial photographs indicate that the current buildings on the subject property were constructed between 1957 and 1963. The southern portion of the site was extensively covered by buildings with docks in photographs from 1936 through 1963; it appears that these structures were removed sometime between 1963 and 1977. Fire insurance maps from 1950 indicate that the property was used primarily by Portland Lumber Mills, and also by the Plylock Corp. (manufacturing with wood), Portland Chain Manufacturing Co., and Skookum Logging Supply Co.

Regulatory History

Spills

In May 1987, a transformer capacitor at CFM overheated and leaked several ounces of PCB-containing oil. The spill was contained and PCB-impacted material, including the transformer, was shipped offsite for disposal.

Information provided by CFM and TLS indicates that they have minor (less than one gallon) spills of hydraulic, motor, or lubricating oil from machinery on to concrete. These spills are apparently cleaned up and have not caused impacts to soil or groundwater.

Lampros claims they have had no spills.

Underground Storage Tanks (USTs)

Two 1,000-gallon USTs, one containing gasoline and the other containing used oil, were decommissioned at the CFM site in December 1987. According to CFM, contamination was apparently not observed during decommissioning activities, which predates DEQ UST record-keeping.

Water Quality

CFM was issued an NPDES permit on October 7, 1992 and it was terminated on October 20, 1992, apparently because a permit was not required at that facility. A CFM stormwater sample collected and analyzed for metals by the Portland Bureau of Environmental Services in June 1997 detected low concentrations of copper (0.010 milligrams per liter), selenium (0.047 mg/L), and zinc (0.065 mg/L).

There are no water discharge permits on file for Lampros or TLS.

Hazardous Waste

CFM operates as a conditionally exempt small quantity hazardous waste generator and appears to be in compliance.

Lampros and TLS are not registered as hazardous waste generators at DEQ.

Site Hydrogeology

The site lies in the northern-most Portland Basin, a major north-southeast trending sediment filled structural depression found in the northern part of the Willamette River valley and adjoining Columbia River valley (Swanson et al, 1993). The basin is filled with recent alluvium, Pleistocene cataclysmic flood deposits, Miocene to Holocene nonmarine sedimentary rocks, and is underlain by Eocene to Miocene volcanic and sedimentary rocks that are exposed along the basin margins.

The youngest deposits are recent alluvium (silt, sand and gravel mixtures) characteristic of an active fluvial environment. These are made up of shoreline, river channel, and adjacent floodplain deposits.

Terraces that rise 50 to 100 feet above the northeastern shore of the Willamette were formed during Pleistocene cataclysmic flooding related to glacial Lake Missoula, and consist of unconsolidated mixtures of silt, sand, and gravel that generally are coarser than the recent deposits. Fill comprised of fine to medium sands and silt was also placed in many areas along the river during site development. The total thickness of recent alluvium and flood deposits appears to be about 100 feet in the vicinity of the site.

Coarse gravel to conglomerate of the Troutdale Formation, deposited by the ancestral Columbia River, underlies the cataclysmic flood deposits and appears to be about 100 feet thick in the vicinity of the site. Sandy River mudstone underlies the Troutdale Formation and appears to be about 100 feet thick. Basalt of the Columbia River Basalt (CRB) group forms the basement rock of the Portland Basin, and may be as much as several hundred feet thick in the vicinity of the site.

Aquifers in the unconsolidated sedimentary deposits generally are unconfined and localized due to heterogeneity of the deposits. The Troutdale Formation is an important regional aquifer and is widely tapped for both potable and non-potable uses. Interbedded Claystone and/or siltstone, or cementation often promotes confined aquifer conditions within the Troutdale Formation. Deep wells installed in fractured CRB can be very productive and important supply wells. Site elevation is about 30 feet above mean sea level.

Pathway Summary

The Crawford Street site lies in an area of mixed industrial, commercial, and residential use. Approximately 123 residences lie within 1/4 mile of the facility.

Site workers at the facility or trespassers could be exposed to contaminants in surface soil. Utility trench workers could potentially be exposed to subsurface contaminants through direct contact, inhalation, or incidental ingestion.

Oregon Water Resources Department has no well logs for domestic wells within one-half mile of the Crawford Street site.

The nearest significant wetland is located three miles downstream of the subject site at the mouth of Multnomah Channel. Cathedral Park is approximately 1,000 feet downstream of the subject site. Both recreational and subsistence fishing occur within the Lower Willamette River. Commercial fishing within the Portland Harbor is limited to a small Pacific lamprey fishery. Recreational boating, water skiing, swimming, and beach use also occur within the Harbor.

The Lower Willamette River provides habitat for 39 fish species, including populations of wild cutthroat trout, rainbow trout, and mountain whitefish. White sturgeon are plentiful within the Harbor. The Harbor is also an important migratory corridor, nursery habitat, and adult foraging area for two runs of chinook salmon, two runs of steelhead trout, and individual runs of coho and sockeye salmon.

Upper Willamette River populations of chinook and steelhead, which migrate through the Harbor, are listed as threatened species under the Federal Endangered Species Act. The Pacific lamprey is considered a federal species of concern.

Great blue herons, cormorants, osprey, mergansers, kingfishers, peregrine falcons, and bald eagles routinely forage within the Harbor. The area is also part of the wintering range for the Aleutian Canada goose. All are protected under the Migratory Bird Treaty Act. The peregrine falcon is federally listed as an endangered species, while the Aleutian Canada goose is federally listed as threatened species. The bald eagle also is a threatened species, but was recently proposed to be removed from this list.

There is little data on the nature and extent of the benthic community within Portland Harbor sediments. However, it is known that contamination in the benthos, which is a protected beneficial use, can be the source of food-chain effects that radiate up to the species listed above, including humans.

The Lower Willamette River is water quality limited for the following toxic compounds:

- Dioxins/furans (water column and sediments);
- Mercury (fish tissue);
- Pesticides (water column and sediments);
- Polynuclear Aromatic Hydrocarbons - PAHs - (water column and sediments); and
- Trace metals (water column and sediments).

DEQ's Water Quality Division is developing Total Maximum Daily Load requirements (TMDLs) within the lower Willamette River for these contaminants. A TMDL for 2,3,7,8-TCDD was established in 1991.

Conclusions/Recommendations

NOTE: As indicated previously, this review is limited to establishing a link between site activities and contamination in adjacent Portland Harbor sediments. It does not necessarily represent a thorough review of available site data, and the conclusions and recommendations presented below may reflect this limited focus.

The following conclusions are based on the contents of this review:

- Site activities may have resulted in sediment contamination adjacent to the site. Concentrations of sediment contaminants adjacent to the site that exceed Portland Harbor baseline levels include arsenic, lead, mercury, di-n-butylphthalate, LPAHs, HPAHs, and organotins. PAH contaminants found in the sediment are associated with handling/storage of petroleum products, metals are associated with fabrication activities, and organotins are associated with boat painting maintenance (possibly from historical dock activities or by migration from upland use/storage of organotin-based paints on metal).
- It appears that the subject site is the source of organotins contamination observed adjacent to the site, where the concentration is over twice the Portland Harbor baseline value and 55 times the upstream concentration.
- Contaminant concentrations for mercury, LPAHs, and HPAHs observed in the upstream sediment sample are generally equal to or greater than in the sample adjacent to the Crawford Street site. This suggests that historical activities at the upstream adjacent Willamette Cove site may have contributed towards contamination observed adjacent to the subject site.
- Use of the site's historical docks, possibly for conveyance of materials and boat fueling and maintenance, is a possible source of sediment contamination by routine or accidental activities.

Contamination of river sediments adjacent to the Crawford Street site may represent a threat to human health and aquatic life within the river. An Expanded Preliminary Assessment (XPA) on the entire Crawford Street property (CFM, Lampros, TLS, and the southern portion of the property) should be conducted to evaluate sediment contamination, potential upland site contaminant sources, and past waste management practices and to determine the extent and source(s) of observed sediment contamination. Sediment sampling should include subsurface samples to further define the extent of contamination. As necessary, the XPA should present recommendations

aimed at preventing potential further contamination of adjacent sediment. DEQ has determined that these actions warrant a high priority for follow-up.

There is insufficient information to propose adding the site to DEQ's Confirmed Release List or Inventory.

References

DEQ consulted the following general references in preparing this Strategy Recommendation:

1. Portland Harbor Sediment Investigation Report, prepared by Roy F. Weston, Inc. for USEPA, May 1998.
2. Columbia Forge and Machine Works, Inc. response to DEQ Site Assessment Information Request, April 9, 1999.
3. Lampros Steel, Inc. response to DEQ Site Assessment Information Request, March 15, 1999.
4. TLS Steel Products, Inc. response to DEQ Site Assessment Information Request, March 19, 1999.
5. DEQ LUST Database.
6. DEQ HWIMSY Hazardous Waste Generator Database.
7. DEQ SPINS Spill Database.
8. MetroScan Property Records, Multnomah County, Oregon.

Attachments

Table 1: River Sediment Contaminant Concentrations

Figure 1: Site Location Map

Figure 2: Sediment Sampling Points, 1997 Portland Harbor Sediment Investigation

TABLE 1

River Sediment Contaminant Concentrations (1997) **Crawford Street Corporation**

Contaminant	Units	Down-Stream SD058	Crawford Street SD060	Up-Stream SD065	Apparent Portland Harbor Sediment Baseline Maximum Value
Aluminum	ppm	22800	24700	33200	42800
Antimony	ppm	<4	NA	NA	<5
Arsenic	ppm	<4	5	5	<5
Barium	ppm	128	152	163	195
Beryllium	ppm	0.4	0.5	0.6	0.7
Cadmium	ppm	0.3	0.4	0.5	0.6
Chromium	ppm	25	28	35	41
Cobalt	ppm	16	11	18	19.7
Copper	ppm	30	50	41	60
Iron	ppm	31700	32700	37600	45000
Lead	ppm	13	36	28	30
Manganese	ppm	322	397	547	810
Mercury	ppm	0.1	0.14	0.23	0.1
Nickel	ppm	24	21	29	32
Selenium	ppm	11	12	11	15
Silver	ppm	0.7	0.8	1.0	1.4
Thallium	ppm	5	<4	<4	13
Titanium	ppm	1650	NA	1910	2075
Vanadium	ppm	80	85	98	112
Zinc	ppm	87	112	158	118
2-Methylnaphthalene	ppb	37	66	180	150
4-Methylphenol	ppb	50	230	130	680
Benzoic Acid	ppb	<200	<200	<190	<200
Benzyl Alcohol	ppb	<20	<20	<19	<20
bis(2-Ethylhexyl)phthalate	ppb	<90	<190	<88	390
Butylbenzylphthalate	ppb	<20	<20	<19	<20
Carbazole	ppb	48	99	<19	100
Di-N-Butylphthalate	ppb	43	34	<19	<20
Di-N-Octylphthalate	ppb	<20	<20	<19	<20
Dibenzofuran	ppb	24	33	57	100
Dimethylphthalate	ppb	<20	<20	<19	<20
Pentachlorophenol	ppb	<99	<99	<96	Detect
Phenol	ppb	<20	<20	<19	<20
LPAHs (total)	ppb	379	873	1904	700
HPAHs (total)	ppb	2333	4448	4487	2400
DOTs (total)	ppb	4.1	NA	7.5	220
PCBs (total)	ppb	<40	NA	54	<180
Organotins (total)	ppb	170	773	14	300
2,4-D	ppb	NA	NA	NA	<3.3
2,4-DB	ppb	NA	NA	NA	<5
TOC	%	2.6	0.9	1.6	2

Water Depth	ft	45	9	17
Sediment Sample Depth	cm	0-10	0-10	0-10

NA = Not Analyzed

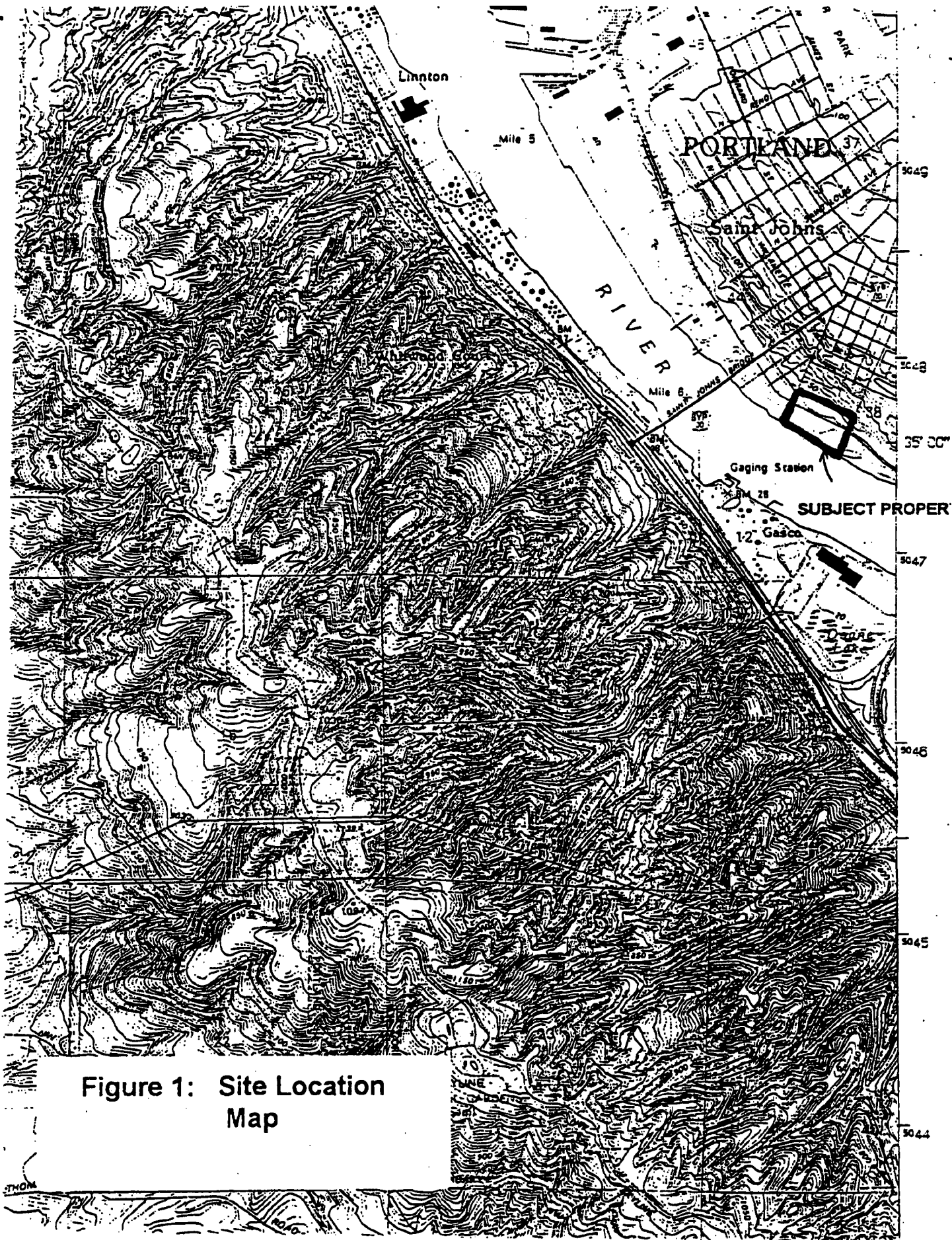


Figure 1: Site Location Map



Figure 2
Sediment Sampling Points

Crawford

BRIDGEWATER GROUP, INC.

ROSS D. RIEKE, P.E.
4840 SW MACADAM, SUITE 222
PORTLAND, OR 97201
TEL: (503) 973-6088
FAX: (503) 973-6089
rieke@bridgeh2o.com

February 11, 2000

CRF001

Mr. Tom Gainer
Oregon Department of Environmental Quality
2020 SW Fourth Ave., Suite 400
Portland, OR 97201-4987

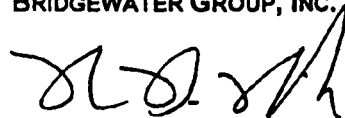
Subject: Crawford Street Corporation Site
Preliminary Assessment

Dear Mr. Gainer:

Please find enclosed three copies of the February 10, 2000 *Preliminary Assessment for the Crawford Street Corporation Site*. As noted in the report, we are proposing a soil sampling program to assess potential releases of hazardous substances on the Crawford Street site and the potential migration of the hazardous substances to the Willamette River. We are prepared to initiate the soil sampling program once you have reviewed this report and provided any comments on the proposed sampling program. Thank you for your help and please call if any questions.

Sincerely,

BRIDGEWATER GROUP, INC.



Ross D. Rieke, P.E.
Vice President
Environmental Consultant

cc: Tom Zelenka/Crawford Street Corporation
Joan Snyder/Stoel Rives

RECEIVED
STOEL RIVES LLP

By 2/14/00
cc:

CRAW00000541

Preliminary Assessment

Crawford Street Site Portland, Oregon

Prepared for
Crawford Street Corporation

February 10, 2000

BRIDGEWATER GROUP, INC.

CONTENTS

Text

INTRODUCTION	1
1.1 Purpose of the Preliminary Assessment	1
1.2 Scope of Preliminary Assessment	1
CURRENT SITE CONDITIONS AND OPERATIONS	3
2.1 Local Utilities and Storm Water System	3
2.2 North Area	4
2.3 South Area	7
2.4 Adjacent North of Crawford Street Corporation Property	8
2.5 Adjacent East (Upriver) of Crawford Street Corporation Property	9
2.6 Adjacent West (Downriver) of Crawford Street Corporation Property	10
2.7 Soil and Groundwater Conditions	10
SITE HISTORY	12
3.1 South Area	12
3.2 North Area	16
3.3 Adjacent North of Crawford Street Corporation Property	20
3.4 Adjacent East (Upriver) of Crawford Street Corporation Property	21
3.5 Adjacent West (Downriver) of Crawford Street Corporation Property	22
ASSESSMENT OF POTENTIAL SOURCES AND PORTLAND HARBOR PATHWAYS OF EXPOSURE	24
4.1 Possible Willamette River Receptors	24
4.2 Underground Storage Tanks	25
4.3 Storm Water Runoff and Infiltration from Columbia Forge	25
SAMPLING AND ANALYSIS OF SOURCE/PATHWAYS OF CONCERN TO PORTLAND HARBOR	28
5.1 Contaminants of Interest	28
5.2 Source/Pathways of Concern	29
5.3 Proposed Sampling Program	29

Tables

Table 4-1	Former Underground Storage Tanks on CSC Site
Table 5-1	Proposed PA Surface Soil Sample Locations

Figures

Figure 1-1	Site Location Map
Figure 2-1	Site Plan
Figure 2-2	USGS Topographic Map
Figure 2-3	1998 Aerial Photograph
Figure 2-4	Columbia Forge Site Plan
Figure 2-5	Shoreline Features
Figure 5-1	Proposed PA Surface Soil Sampling Locations

Appendices

Appendix A	Photographs of Current Site Conditions
Appendix B	Analytical Laboratory Report for Underground Storage Tank Removal Soil Samples

SECTION 1

INTRODUCTION

This Preliminary Assessment (PA) report presents the results of a PA performed for the Crawford Street Corporation (CSC) site in Portland, Oregon (Figure 1-1). The site includes current addresses of 8424 and 8524 North Crawford Street. This PA was requested by the Oregon Department of Environmental Quality (DEQ) and is being performed under a DEQ Voluntary Cleanup Letter Agreement dated November 8, 1999.

1.1 Purpose of the Preliminary Assessment

The purpose of the PA is to assess the potential for releases of hazardous substances to have occurred at the CSC site and for the releases, if they have occurred, to have migrated to the Willamette River sediments and caused a threat to human health or the environment. Based on the October 1, 1999 DEQ Site Strategy Recommendation for the CSC site, the contaminants of interest (COIs) in the Willamette River sediments adjacent to the CSC site are:

- Arsenic
- Lead
- Mercury
- Di-n-butylphthalate
- Low molecular weight polynuclear aromatic hydrocarbons (LPAHs)
- High molecular weight polynuclear aromatic hydrocarbons (HPAHs)
- Organotins

The PA specifically assesses the potential for these COIs to have been released on the CSC site during CSC's ownership of the site and to have migrated to the Willamette River.

This PA also identifies a soil sampling program to further assess whether COIs may have been released from the CSC site and may have migrated to the Willamette River.

1.2 Scope of Preliminary Assessment

The PA was performed by reviewing available historical information, performing a site reconnaissance, and interviewing available persons familiar with the current and past site operations. Specific sources of information reviewed included:

- Sanborn Fire Insurance maps from 1905, 1911, 1924, 1950, and 1969.
- Aerial photographs from the U.S. Army Corps of Engineering and Northern Lights Studio from 1936, 1939, 1940, 1948, 1955, 1956, 1957, 1961, 1963, 1964, 1967, 1968, 1970, 1971, 1972, 1973, 1977, 1980, 1984, 1991, 1994, 1996, and 1998.
- City Directories for 1936, 1941, 1950, 1955, 1960, 1970, 1975, 1980, 1985, 1990, and 1998.
- Historical photographs from the Oregon Historical Society for the late 1800s, early 1900s, and 1932.

A site reconnaissance was performed on December 9 and 21, 1999. Representatives of CSC and the current property tenants were interviewed during the site visits.

SECTION 2

CURRENT SITE CONDITIONS AND OPERATIONS

The CSC site is an approximately 15-acre site located along the Willamette River in the St. Johns district of Portland, Oregon (Figure 2-1). The site is situated in the southwest quarter of Section 15, Township 1 South, Range 1 West. The site is bordered by the Willamette River to the south, North Burlington and North Richmond Streets to the west and east, respectively, and by North Crawford Street to the north. A Union Pacific Railroad (UPRR) rail spur runs east/west through the center of the site.

For the purposes of the PA and consistent with the past and current use of the site, the site is separated into two areas; North Area and the South Area. The North Area is located north of the railroad tracks and the South Area is located south of the railroad tracks. The North Area is currently mostly covered with buildings and pavement while the south area is vacant and covered with gravel and asphalt pavement.

The overall site area slopes down, relatively steeply north of the CSC site, from north to south with a slight slope down from east to west. A USGS Map showing the regional topography is presented in Figure 2-2. A 1998 aerial photograph is presented in Figure 2-3. Appendix A presents representative photographs of the current site conditions.

2.1 Local Utilities and Storm Water System

The site is currently served by the public utility system including water and sewer. Water lines are located in beneath Crawford Street and the UPRR rail spur. Electric power is provided from along Crawford Street. A buried, 8-inch diameter UPRR diesel pipeline is located beneath North Crawford Street west of the site and between North Burlington and Richmond Streets. The pipeline alignment then follows North Richmond Street between North Crawford Street and the UPRR rail spur. East of the site, the pipeline lies beneath the UPRR rail spur.

Storm water runoff in the CSC site area is collected in local catch basins and conveyed in the City of Portland storm sewer system. The collected storm water is conveyed to the Willamette River through the outfall located on the City of Portland property west (downriver) of the CSC site (City Outfall 50). From its construction in the early 1900s to about 1997, sewage from the overall St. Johns area was occasionally also conveyed through Outfall 50 during periods of wet weather. In approximately 1997, the sanitary sewer in the CSC site area was separated from the storm water system and sewage "overflows" are no longer discharged through the outfall.

Storm drain lines at the CSC site are located along the UPRR rail spur and along North Crawford Street. Catch basins along Crawford Street drain into the Crawford Street lines. Roof drains from the CSC buildings are connected to the line along the UPRR tracks. Two catch basins are located just north of the intersection of the UPRR tracks and North Burlington Street. These catch basins capture most of the runoff from both the CSC site and the large area up-slope (i.e. north) of the site. The buried storm drain lines flow east to west.

2.2 North Area

For the purposes of describing the current site conditions and consistent with current site use, the north area is subdivided into five subareas:

- North Richmond Street to North Charleston Street (Vacated)
- North Charleston Street (Vacated) to North John Street (Vacated)
- Columbia Forge
- TLS Steel
- Lampros Steel

The current site conditions on each of these areas are presented below.

2.2.1 North Richmond Street to North Charleston Street

This area is vacant and covered mostly with dense vegetation. This area slopes down from the northeast to the southwest. A portion of the interior of the area has been cleared and gravel fill has been placed. Lampros Steel is using the gravel-filled area for limited storage of structural steel product.

The entire area is fenced with a gate in the southeast corner of the area. No significant areas of stains or distressed vegetation were observed in this area. In summary, no evidence of releases of hazardous substances was observed in this area of the CSC site.

2.2.2 North Charleston Street to North John Street

This entire area is covered by a 200-foot by 200-foot steel building. The building is open to the west and is used by Lampros Steel to cut structural steel beams. The building has a sound concrete floor and no floor drains were observed. Lampros uses small quantities of lubricating oil in the beam saw located in this building. Lampros uses water-based cutting lubricants in the beam saw. The lubricating oil and water-based cutting oils were stored in the various locations in the building, near the cutting equipment. Oil staining was observed on the building floor beneath the cutting equipment. The oil was contained on the floor and no evidence of release to the underlying soil was observed. Lampros representatives

southwest corner. Upsetter forges and induction heaters are located in covered areas along the eastern edge of the yard. A large drop forge is located in a covered area in the southern portion of the yard. Welding operations are performed in a covered area in the southeastern portion of the yard. All forging and general operation areas are covered. Steel materials to be forged are stored throughout the yard including steel rod and pipe.

An approximately 1,000 square-foot oil storage building is located in the central portion of the yard. Lubricating oil used in the equipment on the Columbia Forge site is stored in this building. Other materials stored in this building include used oil, and two drums of Safety-Kleen naphtha solvent. Approximately forty 55-gallon drums, mostly lubricating oils, were stored in the oil storage building. The drums were placed in metal containment trays and spill kits were conspicuously located in the northeast corner building. The floor of the building was sound concrete with no floor drains. Although there was evidence of incidental drippage of oil (i.e. stains) on the building floor, rapid cleanup of the incidental drippage with absorbent material appears to have prevented any migration of the minor spills. The facility manager did not recall any spills of oil that caused impacts outside the building.

Used oil is removed from the site by a licensed oil recycler for recycling.

Two storm water drainage catch basins are located in the yard. One catch basin is located near the northeast corner of the drop forge. One catch basin is located along the western edge of the yard just north of the compressor building. Storm water runoff from the yard flows to these catch basins. From the catch basins, the water flows through buried pipes to the south boundary of the yard where the water infiltrates into the ground alongside the UPRR rail spur. CSC has installed filters within the catch basins to remove suspended particulates from the storm water runoff.

Most of the roof drains from the Columbia Forge and Lampros buildings are connected to the storm drain line located along the UPRR rail spur.

2.2.4 TLS Steel

TLS Steel leases a small (less than 2,000 square-feet) space from Columbia Forge in the northern end of Building 2/3. TLS performs light metal heating, shaping, punching, cutting, and bending using a small natural gas-fired furnace. TLS has been operating in the current location since 1989. The portion of Building 2/3 that TLS occupies is a wood frame building with a metal roof.

TLS uses small amounts of lubricating oil and cutting oil. All cutting oils are water-based. Lubricating and cutting oils are stored in various containers throughout the relatively small TLS area. Although petroleum stains are present on the TLS floor, the floor was sound concrete with no floor drains. No evidence of recent releases of hazardous substances was observed in the TLS area.

2.2.5 Lampros Steel

Lampros Steel has been operating on the CSC site since 1989. Lampros Steel distributes steel structural members (typically steel W and H sections). As part of the distribution work, Lampros also cuts and bends members to customer specifications. All cutting and bending work is performed in the building located west of the Columbia Forge area (See Section 2.2.2).

Activities performed in the Lampros area in the northwest corner of the CSC site include general storage of equipment and raw materials (steel bars and beams). Hazardous substances observed in the Lampros building included hydraulic oil (three 55-gallon drums), water-based cutting oil (two 55-gallon drums), and used oil (one 55-gallon drum). No significant stains were observed on the sound concrete floor. No floor drains were observed. The Lampros Steel office is located in the northwest corner of the Lampros building.

A 1,000-gallon, above ground diesel storage tank is located at the northern edge of the Lampros site. A steel containment box surrounds the tank. No stains were observed on the pavement surrounding the containment box. The Lampros representative was not aware of any releases or spills from the tank.

Lampros Steel is not a registered hazardous waste generator and evidence of hazardous waste generation was not observed. Used oil generated through equipment maintenance is placed in the Columbia Forge oil storage building and recycled offsite by a licensed oil recycler.

In summary, no evidence of recent releases of hazardous substances was observed in this area of the CSC site.

2.2.6 UPRR Rail Spur

Soil staining typical of rail road operations was observed along the UPRR rail spur separating the North and South Areas. The staining was consistent with petroleum hydrocarbons releases from diesel locomotives and spillage of products from the rail road cars.

2.3 South Area

The South Area of the CSC site consists of about 7 acres of open area used by Lampros Steel to store and stage structural steel beams. Most of the northern half of the area is paved with asphalt. Most of the southern half is covered with gravel. Lampros Steel representatives estimated that about 60 percent of the overall South Area is paved. No buildings are present in this area and the structural steel is stored in rows with access paths for the fork lifts and trucks in between the rows.

The entire South Area is fenced with access gates in the western and eastern ends of the area. The fence has been knocked over for an approximate 100-foot length along the southern edge of the property near

the abandoned extension of North John Street and for an approximate 50-foot length along the eastern boundary near the UPRR rail spur.

The riverbank is vegetated with blackberries and small trees. Most of the bank is covered with concrete debris and logs. Some of the concrete debris is larger than 6 feet with logs greater than 20 feet long. Smaller asphalt debris was also observed on the riverbank. Although the vegetation limited the ability to closely observe, no seeps were observed along the riverbank during the site reconnaissance. A nominal 8-inch diameter concrete pipe was observed protruding from the river bank about 200 feet east of the western boundary of the site. No evidence of recent flow from the pipe was observed (even after recent wet weather) and the pipe appeared to be associated with previous uses of the site.

In general, surface water was observed to infiltrate into the bare ground in the South Area and no evidence of direct surface water runoff to the adjacent Willamette River was observed. However, there were limited areas along the riverbank where small draws and associated surface water collection areas along the top of the bank were observed. Although these areas do not appear to drain large areas of the South Area, localized runoff collection and flow to the adjacent river could occur in these areas during heavy rainfall events.

Limited areas of black sand were observed along the top of the bank and, in some areas, along the river shoreline. The black sand appears to be different from the native soil present along the riverbank. The black sand was present in some of the small draw areas observed along the riverbank. The black sand is believed to have been imported and placed by previous property owners during the demolition of the former lumber mill buildings.

In summary, no evidence of recent releases of hazardous substances was observed in this area of the CSC site.

2.4 Adjacent North of Crawford Street Corporation Property

The area north of the CSC site is used for heavy equipment and truck storage and repair. St. Johns Truck and Equipment/Hildebrand Truck & Equipment is located immediately north (up gradient) of the CSC site, across North Crawford Street at 8435 North Crawford Street. The central portion of the site is used to store a large amount of disassembled truck parts including transmissions, wheels, tires, tanks, rear-end assemblies, and axles on unpaved ground. The property was observed from public right-of-ways during the site reconnaissance.

A heavily-stained, uncovered wash pit is present immediately adjacent to North Crawford Street, across the street from the Columbia Forge office. The approximate 15-foot by 30-foot area drains to a sump that presumably drains to the local storm water or sanitary sewer system. The concrete floor in the wash pit was heavily stained with petroleum

hydrocarbons. What appeared to be a solvent cleaning tank was also located in the wash pit. Any releases from the solvent tank would also flow directly to the drain.

Based on hazardous substance reports filed with the State Fire Marshal, St. Johns Truck and Equipment handles significant quantities of hazardous substances including waste oil, motor fuel, fuel oil, and welding gasses. St. Johns Truck and Equipment is also noted as having a sodium hydroxide cleaning tank.

The western portion of this up gradient property (across from Lampros Steel offices) is also used to store trucks. Oil stains are present on the unpaved ground where the trucks are stored. Torch cutting of disassembled truck parts is also being performed in this area.

St. Johns Marine is located north of the CSC site, along North Richmond Street. Along with boat and boat motor repair facilities, boats and boat motors are stored outside on unpaved ground.

Storm water runoff from these up gradient areas flows on to, and across the CSC site. In particular, runoff flows off of the St. Johns Truck and Equipment site and flows on to the Lampros Steel property at the west end of the CSC site, onto the Columbia Forge yard, and onto the Columbia Forge and Lampros Steel yard at North John Street. A sheen was observed on this runoff during the site visit. CSC constructed an asphalt berm along the southern edge of North Crawford Street to reduce the amount of runoff coming on to the CSC site from up gradient properties.

The runoff from the up gradient properties continues across the CSC property to the UPRR rail spur where it ponds and infiltrates. During heavy rainfall events, this runoff from the up gradient properties can flow to the west to the City of Portland catch basin at the intersection of North Burlington Street and the UPRR rail spur.

Storm water runoff also flows down North Richmond Street to the UPRR rail spur from the up gradient properties.

2.5 Adjacent East (Upriver) of Crawford Street Corporation Property

The property east (upriver) of the North Area of the CSC site consists of a residence and an auto repair shop. The shop is located in an approximately 80-foot by 30-foot building. Vehicles and small construction equipment were observed on the unpaved area around the building.

The property east (upriver) of the South Area, is presently vacant. Various debris are present on the site including concrete debris, tires, and general trash. Vegetation on this adjacent property consists of grasses, blackberries, and small trees. Recent petroleum staining was observed along the UPRR rail spur immediately east of the CSC site.

3.1.2.2 Activities During CSC Ownership

MMI purchased this property from the City of Portland in 1988. MMI shortly thereafter transferred the site to the Crawford Street Corporation. In 1989, Lampros Steel started using this area to store structural steel.

There are no records or direct evidence of releases of hazardous substances on this portion of the CSC site.

3.1.3 South/Leavitt to Burlington

3.1.3.1 Activities Prior to CSC Ownership

Historical photographs obtained from the Oregon Historical Society notes this area being undeveloped, except for a few dwellings, in the late 1800s.

The earliest available Sanborn Map (1905) notes this area being used for lumber storage for St. John's Lumber Company. The 1911 Sanborn Map continues to note lumber storage with the addition of a 30,000 square-foot planing mill building and a 55,000-gallon water tower. The water tower was located at the end of the present-day, North Burlington Street and was present until 1969. The planing mill building was significantly reduced in size between 1911 and the 1930s. In the early 1950s, the planing mill was significantly expanded and was present until the mid-1970s.

An April 27, 1924 fire damaged much of the lumber storage platforms along southern edge of this area.

By 1936, a 10,000 square-foot lumber storage building was located in the northern portion of this area. This building was expanded in the early 1950s and was present until the mid-1970s.

The Sanborn Maps note that mill refuse was used for fuel at the lumber mill and no oil tanks are noted on the maps.

The 1969 Sanborn Map shows a small machine shop along the river from in the western portion of this area. The machine shop was apparently associated with the lumber mill and was removed with the other buildings on the site in the mid-1970s. By the late 1970s, the site was vacant and all buildings had been removed. The City of Portland, through the Portland Development Commission, purchased the property in 1979.

Some former and current property tenants and representatives noted that black sand material was imported to the South Area and used for surface fill when the lumber buildings were demolished. The reports of black sand fill are consistent with the black sand observed along the riverbank during the site reconnaissance (Section 2.3).

3.1.3.2 Activities During CSC Ownership

MMI purchased this property from the City of Portland in 1988. MMI shortly thereafter transferred the site to the Crawford Street Corporation. In 1989, Lampros Steel started using this area to store structural steel.

There are no records or direct evidence of releases of hazardous substances on this portion of the CSC site during CSC's ownership.

3.1.4 Previous Environmental Investigation on South Area

In 1988, prior to MMI's purchase of the South Area, MMI retained Sweet-Edwards/Emcon to perform an environmental investigation of the South Area. The investigation included the following:

- Historical review including Sanborn Fire Insurance Map review and an interview with a former onsite worker.
- Water sampling from pipes protruding from ground surface.
- Geophysical survey for subsurface features (e.g. underground storage tanks).
- Five test pits to assess subsurface features suggested from the geophysical survey.
- Removal of an underground storage tank identified from the geophysical survey and test pits.
- Sampling of black sand fill.
- Seven test pits and one soil boring to assess subsurface conditions in the area of the black sand fill.
- One soil boring exploration to assess a possible septic drain and drain field area.
- Soil and groundwater sample laboratory analysis for petroleum hydrocarbons, volatile organic compounds, PCBs, and EP Tox metals.

The study identified and assessed the following possible environmental issues on the South Area of the CSC site:

- Up to about 6 feet of black sand fill is present in the western portion of the South Area along portions of the bank above the Willamette River shoreline. Based on an interview with a former site employee, the fill was reportedly placed during the demolition of the sawmill in 1977-1978, prior to CSC's ownership of the property. The sand was reportedly spent sandblast material that had been used to clean oil tanks. The sand was oily when placed and oily water reportedly migrated briefly to the adjacent river.
- EP Tox metal concentrations in samples of the black sand did not exceed hazardous waste levels. A sample of the material was measured to contain oil and grease at a concentration of 400 mg/kg. No PCBs were detected in the samples of the material. Perched groundwater with a sheen was observed in some of the test pits in the black sand area.
- A groundwater sample from near the black sand fill area did not note any evidence of contamination according to the Sweet-Edwards/Emcon study. Soil beneath the black sand, but above the

shallow groundwater, was not stained and did not indicate evidence of contamination. The shallow groundwater was about 26 feet beneath the bottom of the fill material.

- Soil and groundwater samples collected from the test pits and the soil boring in the area of the former septic tank and drain field did not note any evidence of contamination.
- The underground storage tank identified from the geophysical survey and test pit explorations was located in the southeastern portion of the South Area. A sample of the contents of the tank was found to be diesel. The tank was removed and properly disposed offsite. No field evidence of contamination was observed during the tank removal. Two soil samples collected from the bottom of the tank excavation and a third sample from the fill port area were analyzed for oil and grease. Oil and grease was detected in the bottom soil samples at concentrations of 100 mg/kg and 200 mg/kg. Oil and grease was detected in the soil sample from the fill port area at a concentration of 100 mg/kg.
- A reconnaissance of the river bluff did not note any groundwater seeps in the exposed bank.

3.2 North Area

As noted in Section 2, the North Area is the portion of the site located between the UPRR railroad spur and North Crawford Street. The location of the streets used to reference the subareas discussed below are shown on Figure 2-1.

3.2.1 North Richmond Street to North Charleston Street

3.2.1.1 Activities Prior to CSC Ownership

The earliest available Sanborn Map (1905) shows only a few dwellings and a small machine shop in this area.

By 1911, a 9,000 square-foot machine shop was located in this area. The foundry in the machine shop was fueled by coal. Two dwellings are also noted in this area on the 1911 Sanborn Map. The 9,000 square-foot building is vacant and only the dwellings remain in the 1924 Sanborn Map.

From the mid 1930s to 1948, this area was used for lumber storage. The site was no longer used for lumber storage from about 1950 to the early 1970s when logs were stored in this area.

The building was removed in 1973 and by 1977, the site was not used and was vacant with vegetation.

3.2.1.2 Activities During CSC Ownership

MMI purchased this property from the City of Portland Development Commission in 1988. MMI shortly thereafter transferred the site to the Crawford Street Corporation. In the mid-1990s, Lampros Steel started using the middle of this area to store structural steel.

There are no records or direct evidence of releases of hazardous substances on this portion of the CSC site.

3.2.2 North Charleston Street to North John Street

3.2.2.1 Activities Prior to CSC Ownership

From before 1905 to the mid-1930s, only dwellings were present in this area. Starting in the mid-1930s to the mid-1940s, this area was used to store lumber. The 1950 Sanborn Map shows a small auto repair shop (noted in the City Directory as Love Fuel Company) and a single dwelling on this area. No fuel tanks are shown to be associated with this facility.

Sometime between 1957 and 1960, a 200-foot by 200-foot building was constructed, covering almost this entire area. The 1969 Sanborn Map notes the building being used by Portland Manufacturing Company to store lumber.

The City of Portland Development Commission (PDC) acquired the property in the 1970s. While the PDC owned the property, the City of Portland used the building for general maintenance operations.

3.2.2.2 Activities During CSC Ownership

MMI purchased this property from the City of Portland Development Commission in 1988. MMI file information notes that there was a drum of Silvex in the PDC building when the building was purchased by MMI in 1988.

This building is currently present on the site and has been used by Lampros Steel since 1989. Shortly after purchasing the property, MMI transferred the site to the Crawford Street Corporation.

There are no records or direct evidence of releases of hazardous substances on this portion of the CSC site.

3.2.3 North John Street to North Leavitt Street

The earliest available Sanborn Map (1905) shows this area vacant. This area remains vacant except for periodic use for storage of plywood and lumber mill wood waste, until the mid-1950s when a 1,700 square-foot "Pattern Shop" is constructed in the northern portion of this area. The pattern shop is noted as "Peninsula Pattern Works" in the 1960 through 1970 City directories.

By 1961, the use of the western area of site, including "Pattern Shop" appeared to be associated with Skookum Logging Equipment, located to the west of this area. The use of the eastern portion of this area was associated with the 200-foot by 200-foot building located to the east.

Columbia Forge moved into the Pattern Shop building in 1971. The building is expanded in 1972 to what is currently the Columbia Forge office and Building 1. The current oil storage building was also constructed in 1972.

CSC files indicate that two underground storage tanks (USTs) were formerly present in this portion of the CSC site. Both tanks were removed in 1987. The approximate former locations of the tanks are shown on Figure 2-4.

One tank was located near the southern portion of the area in the "weld shop." This tank was a 1,000-gallon steel tank and was installed in the late 1960s. The tank was used to store Bunker C oil. A second tank was located along the northern edge of the site and was referred to as the "Yard" tank. This tank was a 1,000-gallon steel tank and was installed in the mid-1950s. This tank was used to store gasoline.

Soil samples were collected from the tank excavations and analyzed for petroleum hydrocarbons when the tanks were removed. The sample from the "Yard" UST was also analyzed for total lead and EP Toxicity lead. Diesel was not detected in either of the soil samples and gasoline petroleum hydrocarbons were detected only in the sample from the Yard UST excavation at a concentration of 16 mg/kg. The measured total lead concentration in the soil sample from the Yard UST was in the range of typical background concentrations and lead was not detected in the EP toxicity analysis. The laboratory report for the soil chemical analyses is presented in Appendix B.

A very small quantity (2 to 3 ounces) of PCB-containing oil was spilled inside an electrical induction heater cabinet in May 1987. The entire cabinet was removed from the site and disposed properly by General Electric. No PCB oil was released outside the cabinet and no PCBs were released to the ground. There is no potential for the contained spill of PCB oil to have caused an impact to the Willamette River water or sediments.

In 1997, BES collected a storm water sample from the western drain pipe outlet from the Columbia Forge yard area (see Section 2.2.3 and Figure 2-4). The sample was analyzed for metals. Low concentrations of copper (10 µg/L), selenium (47 µg/L), and zinc (65 µg/L) were detected in the sample. Lead, cadmium, and chromium were not detected in the storm water sample.

3.2.4 North Leavitt Street to North Burlington Street

The earliest available Sanborn Map (1905) notes five dwellings on this area of the site. The dwellings are also present on the 1911 map along with a building labeled "Portland Collapsible Box" on the southeast corner

of the site. A "Lauther's Mercantile Warehouse" is also shown on the southwest corner of this area on the 1911 Sanborn Map.

By 1924, Skookum Logging Equipment Company began operations on this area of the site except for the northwest corner of the area where three dwellings were located. The Skookum operations included a machine shop in the southeast corner and a coal bin in the southern portion of the area. The Skookum facility also included a brass foundry in the northern portion of the site. Warehouses used to store hay and wire cable were noted in the southwest portion of this area in the 1924 Sanborn Map.

The foundry was expanded sometime between 1924 and 1936 and 1940 when the last remaining dwellings in this area were removed. The warehouses in the southwest portion of this area were removed in the late 1940s.

By 1950 Skookum Logging Equipment occupied the entire eastern half of this area. The Skookum operations had been expanded to include a foundry with two furnaces, a hammer forge, and a machine shop in the southeast corner.

The 1950 Sanborn Map shows Portland Chain Manufacturing Company occupying the western half of this area. The Portland Chain Manufacturing Company was mostly an open yard with five forge furnaces. A 3,500 square-foot building was located in the northwest corner of this area.

The buildings on the eastern half of this area were expanded in the period 1950 to 1955 such that the entire eastern half of this area was covered. Between 1963 and 1964, the building currently existing on the western portion of this area was constructed.

CSC files indicate that an UST was formerly present in this portion of the CSC site. The UST was removed in 1987. The approximate former location of the tank is shown on Figure 2-4. This tank was a 5,000-gallon steel tank and was used to store diesel. It is not clear when the tank was installed but it appears to have been installed before 1960. A soil sample was collected from the tank excavation and analyzed for petroleum hydrocarbons when the tank was removed. Gasoline or diesel was not detected in the soil sample. The laboratory report for the soil chemical analyses is presented in Appendix B.

3.2.5 Previous Environmental Investigation on North Area

The environmental investigation performed by Sweet-Edwards/Emcon in 1988 and described in Section 3.1.4 also included a historical review and site reconnaissance of the North Area. No soil or groundwater samples were collected in the North Area as part of the 1988 investigation.

The 1988 historical review and site reconnaissance noted the following:

- An 8-inch, buried, Union Pacific Railroad diesel pipeline is present beneath North Crawford Street.

- Three underground storage tanks had been previously located on the Columbia Forge and Lampros Steel areas. The tanks were removed in 1987. Petroleum hydrocarbons were detected at a concentration of 16 mg/kg in one sample. Petroleum hydrocarbons were not detected in the other two soil samples.
- Oily runoff of storm water occurs from the Columbia Forge and Lampros Steel areas. The runoff pools along the UPRR rail road spur along the southern edge of the Columbia Forge and Lampros Steel areas.
- A fuel pump island and, presumably, an underground storage tank are present on the St. Johns Truck and Equipment property north of North Crawford Street. An outside steam cleaning area with a drain was also observed on the St. Johns Truck and Equipment property.

The Sweet-Edwards/Emcon report did not recognize the flow of storm water onto and across the CSC site from the properties upgradient (i.e. north) of the CSC site.

3.3 Adjacent North of Crawford Street Corporation Property

From before the earliest Sanborn Map available (1905) to the mid 1950s, the area north of the CSC site was mostly vacant with a few dwellings. Starting in the 1920's, the far west end was also used for lumber storage.

In the early 1960s, a building was constructed along the north side of North Crawford Street, between North John and Leavitt Streets. The building was used initially for a fuel business (St. Johns Fuel Company) and then for truck repair (Hildebrand Truck and Equipment starting between 1970 and 1975). The truck repair shop is still operated on this area north of the site. Since its construction, more and more debris, equipment, and trucks have been placed around the truck repair building.

The property between North Burlington and Leavitt Streets was used for lumber storage up to the late 1960s. From that time to the present, this area has been used for auto and truck parking.

By 1991, a large amount of debris, equipment, and trucks in varying degrees of disassembly were present on almost all of the properties north of the CSC site. As discussed in other sections of this PA report, storm water runoff from these areas flows to, and across, the CSC site. Sheens have been observed on this runoff coming from the properties north of the CSC site.

A fuel pump was present on the St. Johns Truck and Equipment site in the late 1980s. Such a pump would have most likely been associated with underground storage tanks. DEQ has no records of USTs on the St. Johns Truck and Equipment site. However, City of Portland Fire Bureau records note a 2,000-gallon diesel tank and two 8,000-gallon gasoline tanks being installed on the St. Johns Truck and Equipment site. No files

were found at DEQ or the Fire Bureau indicating that the tanks have been removed.

3.4 Adjacent East (Upriver) of Crawford Street Corporation Property

3.4.1 General History

The earliest available Sanborn Map for this area (1911) shows a dock along the river front, east of the CSC site. By 1924, the area east (upriver) of the CSC site was the site of a large plywood mill. The plywood mill was present in this area through the late 1960s. From no later than 1950 to its closure, the mill was operated by Plylock.

The several Sanborn Maps covering this area over this period note glue storage areas. Phenol-based glue was a typical industrial product used at similar operations. The glue was presumably used to attach the wood veneers to form the plywood. Other hazardous substances typically associated with plywood mills include petroleum hydrocarbons from lubricating oils.

By the later 1960s, the plywood mill was abandoned and only a small cabinet shop remained operating in the area east (up river) of the CSC site. The plywood mill buildings and the dock along the river front were demolished in 1971 and 1972. By 1973, the area east of the CSC site was vacant with bare ground.

The property east of the CSC site is currently owned by the Metropolitan Regional Center (Metro) who recently purchased the site from the City of Portland.

3.4.2 Previous Environmental Investigation on Property East (Upriver) of Crawford Street Site

In 1988 and 1989, Sweet-Edwards/Emcon was retained by Grayco Resources to perform a Level I environmental site assessment and field investigation of the property east (up river) of the CSC site and south of the UPRR rail tracks. The investigation consisted of an historical review, a site reconnaissance, geophysical survey, 13 test pits, four hand auger borings, and 19 soil borings. Chemical analysis was performed on 25 soil samples and 22 groundwater samples. PCBs were detected in groundwater samples from soil borings on the western end of the investigation area, near the east end of the CSC site.

In 1994, the City of Portland retained Century West Engineering Corporation to perform a Phase I and Phase II environmental site assessment of the property east of the CSC site, north of UPRR rail tracks, and south of vacated North Bradford Street. The investigation consisted of an historical review, a site reconnaissance, and excavation of 12 test pits. No soil or groundwater samples were collected for

chemical analysis from the test pits. The investigation did not note any evidence of contamination on the site.

In 1995 Emcon was retained by Metro to perform additional soil, groundwater, and sediment sampling on the property east of the CSC site and south of the UPRR rail tracks. Soil samples were collected from a series of soil borings and groundwater monitoring wells. Samples from the western end of the site (near the east end of the CSC property), noted PAHs in soil, groundwater, and sediment.

3.5 Adjacent West (Downriver) of Crawford Street Corporation Property

3.5.1 General Site History

The earliest available Sanborn Map for this area (1911) shows a dock along the river front, west of the CSC site. By 1911, the area west (downriver) of the CSC site was the site of a large lumber mill. The lumber mill operations included a large dock. The major operations of the lumber mill were present on this area through the mid-1950s. From the mid-1950s to its closure in the mid-1970s, this area was used for lumber storage and mill refuse management. The dock was present and used from the early 1900s to when the mill was demolished in the late 1970s.

The mill was operated by St. Johns Lumber until between the late 1920s and the early 1930s. From this period to its closure in the mid-1970s, the mill was operated by Portland Lumber Mills. The mill produced wooden boxes.

The mill operations included mill refuse handling and burning. Lumber mill operations also typically include use of lubricants and oils.

The property west of the CSC site was purchased by the City of Portland Development Commission (i.e. City of Portland) in the late 1970s when the former lumber mill and box manufacturer ceased operations on the site.

3.5.2 Previous Environmental Investigation on Property West of Crawford Street Site

In 1988, CSC considered purchasing the property west (downriver) of the CSC site from the City of Portland Development Commission (PDC). As part of their consideration of the property, CSC retained Sweet-Edwards/Emcon to assess potential soil and groundwater contamination issues on the property. The investigation noted several soil and groundwater contamination issues on the PDC property including:

- Over 500 cubic yards of black fill material containing petroleum hydrocarbons and halogenated organic compounds in the western portion of the property.

- Uncontrolled fill containing demolition waste and trash in the southern portion of the property.
- Halogenated organic compounds and 2,4-dichlorophenol in shallow groundwater at the site.

The file information also indicates that underground storage tanks associated with the former lumber mill were formerly present immediately north (upgradient) of the City of Portland property.

In 1994, the City of Portland Bureau of Environmental Services (BES) retained RZA Agra to perform an environmental site investigation at the property west of the CSC South Area property. The investigation included:

- Site history review
- Twenty test pit excavations
- Drilling and construction of five groundwater monitoring wells
- Five test trenches

Samples of black sand material encountered in the test trenches were measured to have petroleum hydrocarbon concentrations up to 667 mg/kg. About 2,113 cubic yards of black sand material was removed from the site based on visual criteria. Pentachlorophenol was detected in a groundwater sample from a well in the southeastern corner of the site at a concentration of 18 µg/L.

In October 1994, a drilling contractor penetrated an abandoned electrical conduit filled with PCB insulating oil on the eastern portion of the City of Portland property. A series of test pits were performed and about 150 cubic yards of PCB contaminated soil was excavated. Five of the 15 confirmation soil samples collected from the excavation after the soil excavation was completed had PCB concentrations greater than 1 mg/kg.

SECTION 4

ASSESSMENT OF POTENTIAL SOURCES AND PORTLAND HARBOR PATHWAYS OF EXPOSURE

This section presents the assessment of potential contaminant sources on the CSC site, the potential contaminant migration pathways from the CSC site sources to the Willamette River, and the potential receptors associated with the Willamette River.

The sources and pathways were identified based on the recent site conditions and operations. The following potential sources and migration pathways were identified and assessed:

- Former underground storage tanks
- Storm water runoff from Columbia Forge

For the purposes of this PA, only those on-site sources and migration pathways possibly occurring during CSC ownership of the site and as a result of operations performed by CSC are considered. In particular, only operations and possible releases occurring after 1988 on the entire South Area and the eastern 500 feet of the North Area were considered in this PA. CSC's predecessor-in-interest did not own the western portion of the North Area until the 1930s.

Only those potential sources and migration pathways associated with contaminants identified by DEQ as COIs in the Willamette River sediments are included in the assessment.

4.1 Possible Willamette River Receptors

The potential exposure receptors associated with the Willamette River are presented in the DEQ Site Strategy Recommendation. These receptors include:

- Persons participating in recreational boating, swimming, and beach use.
- Persons participating in recreational and subsistence fishing.
- Habitat and migration pathway for fish including Chinook salmon and steelhead, which are listed as threatened species under the Federal Endangered Species Act.
- Benthic community in the river sediments
- Habitat for birds and wildlife.

The potential contaminant sources and migration pathways discussed in this section are those that could possibly impact the above potential Willamette River receptors as presented by DEQ in the site strategy recommendation.

4.2 Underground Storage Tanks

Three underground storage tanks were previously located on the CSC site. Table 4-1 summarizes the tank characteristics and locations.

Table 4-1
Former Underground Storage Tanks on CSC Site
Crawford Street Corporation Site PA

Name/ Reference	Location	Size (gal)	Contents	Date Installed
Weld Shop	Outside the southwest corner of Building 1 in southeast corner of the Columbia Forge yard.	1,000	Bunker C oil	1950s
Skookum	Northern edge of the Lampros Steel property at the western end of the CSC site.	5,000	Diesel	Prior to 1960
Yard	Northern edge of the CSC site in the Columbia Forge yard	1,000	Gasoline	Late 1960s

All of these USTs were removed in 1987. Soil samples were collected from the excavation of each tank and analyzed for petroleum hydrocarbons. As noted in Sections 3.2.3 and 3.2.4, petroleum hydrocarbons were not detected in two of the samples and were detected at a concentration of 16 mg/kg in the third sample (from the Yard UST excavation).

Based on the lack of petroleum hydrocarbons in the soil samples from each of the three UST excavations, no releases of petroleum hydrocarbons occurred from the USTs. Therefore, there is no potential for the USTs to have caused an impact to the Willamette River water or sediments. No further assessment of the USTs as possible sources is necessary.

4.3 Storm Water Runoff and Infiltration from Columbia Forge

As noted in Section 2.2.3, storm water runoff from the Columbia Forge yard is collected in catch basins and conveyed to the area along the UPRR rail spur where it infiltrates into the ground. Particulate contaminants from the Columbia Forge site conveyed in the storm water runoff would be deposited in the surface soil as the storm water infiltrated

into the soil. Because of the relative low solubility of the possible contaminants associated with the Columbia Forge site, runoff contaminants would likely consist of contaminated particulates rather than dissolved contaminants.

The area along the UPRR tracks collects stormwater runoff from the entire hillside north of the Crawford Street site. During heavy rainfall, including during the site visit for this PA, storm water runoff flows from the properties to the north of the Crawford Street site, across Crawford Street, and onto the Crawford Street property. Significant sheet flow was observed particularly from the abandoned North John Street area into, and across, the Columbia Forge and Lampros Steel storage yard. As noted in Section 2.4, debris, heavy equipment, and disassembled trucks are, and have been, present on these properties and runoff from these properties likely contains petroleum hydrocarbons and metals. Significant surface water runoff also flows down North Richmond Street and North Burlington Street to the UPRR rail spur.

CSC constructed a 200-foot long asphalt berm along the southern edge of Crawford Street yard to reduce the runoff from the upslope sites entering the CSC property. Prior to CSC's construction of the berm, offsite stormwater runoff flowed freely across the Columbia Forge yard and into the yard catch basins.

4.3.1 Possible Surface Water Migration Pathway

During long periods of heavy rainfall, ponded water along the northern edge of the UPRR tracks may eventually drain into the City of Portland storm water catch basin on North Burlington Street. The City of Portland catch basin is connected to the local combined storm water system, which discharges to the Willamette River at Outfall 50 on the City of Portland property west of the CSC site. Because this ponded water may include runoff from the Columbia Forge yard (along with runoff from the properties north of the CSC site), there is some potential for storm water runoff from the Columbia Forge yard to flow to the Willamette River. CSC Contaminants of Interest (COIs) present in the stormwater runoff (if any) could possibly, therefore, migrate to the Willamette River.

4.3.2 Possible Groundwater Migration Pathway

There is a slight potential that dissolved contaminants in the infiltrating stormwater (if present) could migrate down through the vadose zone and eventually impact the underlying shallow groundwater. The shallow groundwater is expected to flow toward the Willamette River and eventually discharge into the river.

The storm water is expected to have, at the most, only modest contaminant concentrations of relatively insoluble COIs and the depth to shallow groundwater is 20 to 30 feet. Therefore, the potential for groundwater to have been impacted by stormwater runoff and for the groundwater impacts to extend to the Willamette River is small. Such groundwater impacts to the Willamette River from the CSC site, if they

exist, would be indicated by high COI concentrations in the near surface soil near where the runoff from the Columbia Forge yard infiltrates.

4.3.3 Possible Air Migration Pathway

Once COIs, if present, are deposited in the surface soil from infiltrating stormwater, there is some theoretical potential for the contaminants to migrate through the air to the Willamette River. In particular, soil particulates with absorbed COIs could become wind born and migrate to the river with blowing dust. The potential for such impacts to the Willamette River through the air, would be indicated by high COI concentrations in the near surface soil near where the runoff from the Columbia Forge yard infiltrates.

Given the very high dispersion of the contaminated soil particulates that would occur in the air and river, contaminant concentrations in the surface soil would have to be very high before air migration of contaminants could possibly, materially affect the Willamette River sediment.

SECTION 5

SAMPLING AND ANALYSIS OF SOURCE/PATHWAYS OF CONCERN TO PORTLAND HARBOR

This section presents the sampling and analysis program that will be performed at the Crawford Street site as part of the PA. The purpose of the sampling and analysis will be to assess whether releases of Contaminants of Interest (COIs) have occurred from potential source(s) and whether released COIs have migrated through the identified potential pathways to the Willamette River. Potential source(s) that require further assessment are discussed in Section 4.

5.1 Contaminants of Interest

A sediment sample collected by the U.S. Environmental Protection Agency (EPA) in 1997 from offshore of the CSC site was determined by DEQ to contain elevated concentrations of a few hazardous substances. DEQ determined the hazardous substances to be "elevated" based on their concentrations relative to "baseline" concentrations elsewhere in the Portland Harbor. Using this approach, DEQ identified the following as Contaminants of Interest (COIs) for the CSC site:

- Arsenic
- Lead
- Mercury
- Di-n-butylphthalate
- Low molecular weight polynuclear aromatic hydrocarbons (LPAHs)
- High molecular weight polynuclear aromatic hydrocarbons (HPAHs)
- Organotins

The DEQ Environmental Cleanup Site Information (ECSI) Site Summary Report for the CSC site notes that "Mercury and PAH sediment contamination appears (sic) contribution from upstream sources."

There have been no activities on the CSC site associated with organotins. No ship repair or shop painting work has been performed on the CSC site. Over water activities, off of the CSC site, by previous owners was limited to loading of sand and gravel barges at the far eastern end of the site from early 1900s to the late 1940s. Therefore, there is no potential for releases of organotins to have occurred on the CSC site and organotins are not considered a COI at the CSC site.

It is doubtful whether arsenic is actually a COI for the CSC site. The measured arsenic concentration in the sediments offshore of the CSC site (5 mg/kg) is well within typical natural background concentration in the Portland area and only 1 mg/kg greater than the "baseline" concentration established by DEQ. The method detection limit for the arsenic analyses in the EPA study often exceeded the DEQ baseline concentration. Furthermore, arsenic concentrations in suspended sediment entering the Portland Harbor from upstream sources is in the range of 5 to 10 mg/kg. Therefore, the arsenic concentrations in the sediment offshore from the CSC site are not indicative an upland source of arsenic on the CSC site.

5.2 Source/Pathways of Concern

As noted in Section 4.3, there is a potential for COIs to be released from the Columbia Forge yard to the surface soil and possibly migrate through periodic surface water flow to the local storm water system. There is also a small potential for the surface water COIs, if present, to impact the underlying shallow groundwater. Given the non-volatile nature of the COIs, volatilization of the COIs is not expected to be a significant migration pathway.

The relative concentrations of COIs in the surface soil in the area where the Columbia Forge surface runoff infiltrates into the ground would be indicative of the potential for the surface water or groundwater pathways to be significant COI migration pathways. If significantly elevated concentrations of COIs (relative to the upgradient and background concentrations) are not present in the surface soil, elevated concentrations of COIs would not be expected in the surface water runoff or shallow groundwater.

Runoff from the Columbia Forge yard is commingled with storm water runoff from the uphill properties to the north and from runoff from along the UPRR tracks east of the site (the ground slope along the UPRR tracks slopes gently down east to west). Past and current activities on these properties have likely resulted in releases of petroleum hydrocarbons and other COIs to the surface water runoff from the properties. Sampling of surface soil down gradient of the Columbia Forge yard to assess the potential for releases from the yard must also consider the likely sources of COIs up gradient from the Columbia Forge property.

5.3 Proposed Sampling Program

This section describes the specific PA sampling and analysis program that will be performed to assess whether COIs have been released from the Columbia Forge yard to the surface soil and possibly migrated to the Willamette River through the surface water, groundwater, and air pathways.

5.3.1 General Scope of Sampling Program

The PA sampling and analysis program will consist of collecting surface soil samples from six locations along the UPRR rail spur and analyzing the soil samples for the COIs identified by DEQ. Figure 5-1 shows the proposed PA sampling locations. Table 5-1 summarizes the proposed locations and their rationale.

Table 5-1
Proposed PA Surface Soil Sample Locations
Crawford Street Corporation Site PA

Sample	Location	Rationale
SS-1	50 feet west of Richmond Street, along north side of UPRR rail spur.	Assess background soil concentrations along UPRR rail spur
SS-2	At foot of Richmond Street, along north side of UPRR rail spur.	Assess impacts from offsite runoff down Richmond Street.
SS-3	Between southern exit from the Columbia Forge/Lampros Steel yard and the UPRR rail spur.	Assess impacts from offsite runoff onto and through the paved yard.
SS-4	Between outlet drain from catch basin near drop forge and UPRR rail spur.	Area of infiltration for Columbia Forge yard runoff. Assess impacts from Columbia Forge yard runoff
SS-5	Between outlet drain from catch basin at eastern entrance to Building 2/3 and UPRR rail spur.	Area of infiltration for Columbia Forge yard runoff. Assess impacts from Columbia Forge yard runoff
SS-6	At foot of North Burlington Street, along north side of UPRR rail spur.	Assess impacts from offsite runoff down North Burlington Street.

Surface soil contamination is expected to be the most indicative of possible releases to the soil from surface water runoff. Therefore, the soil samples will be collected from the upper 6-inches of the ground surface at the proposed locations shown in Figure 5-1 and described in Table 5-1.

5.3.2 Sampling Procedures

Each surface soil sample will consist of five subsamples composited into a single sample. The subsamples will be collected in a 5-point dice pattern across an approximately 5-foot by 5-foot area at each sample location. The composite soil sampling will provide a more representative assessment of the surface soil contaminant concentrations at each sample location.

Each sample will be collected using the following procedure:

- Scrape away surface vegetation, if present, at each subsample location.

- Excavate a minimum 6-inch deep hole with a clean shovel at each subsample location. If necessary, a clean pick will be used to penetrate the surface.
- After the hole is excavated, collect the soil sample across the upper 6-inches of the sidewall of the hole with a clean trowel or spoon. Exclude large gravel or organic debris from the sample.
- Place the subsample in the laboratory-supplied glass container. Fill the container about 1/5 with each subsample. Instruct the analytical laboratory to thoroughly mix the sample before collecting the aliquot for analysis.
- Place the filled sample container in a chilled cooler for transport to the analytical laboratory.

The samples will be collected and transported using proper chain-of-custody procedures. Field notes will be maintained noting the general soil conditions and any unusual or unanticipated conditions.

5.3.3 Analytical Laboratory Analysis

Each soil sample will be analyzed for the CSC site COIs using the following methods:

- PAHs by EPA Method 8310 or 8270 SIM
- Di-N-butylphthalate by EPA Method 8270
- Lead by EPA Method 3050/6010
- Mercury by EPA Method 7471

A QA/QC review of the laboratory data will be performed once the data is received from the analytical laboratory. This review will include the following:

- Chain-of-custody complete and correct
- Analysis within holding times
- Chemicals of interest in method blanks
- Blank spike recoveries within accuracy control limits
- Blank spike duplicate results within analytical precision control limits
- Surrogate recoveries within accuracy control limits
- Matrix spike recoveries within accuracy control limits
- Matrix spike duplicate results within analytical precision control limits
- Detection limits sufficiently low

On the basis of the results of the QA/QC data review, the data will be flagged according to standard EPA procedures. Questionable data will

be flagged with a "J" and considered an estimated value. Data unacceptable for its intended use will be rejected and flagged with an "R."

5.3.4 Reporting

The results of the PA sampling will be presented in a report once the results of the chemical analysis are received from the laboratory. The report will include the following:

- Table showing the results of the chemical analysis.
- Figure showing where the samples were collected.
- Description of the soil and general site conditions in the area where the samples were collected.
- Discussion of any unanticipated or unusual conditions encountered while collecting the soil samples.
- Copy of the analytical laboratory report.

The report will also include a brief assessment of the potential for releases and migration of hazardous substances based on the results of the PA sampling.

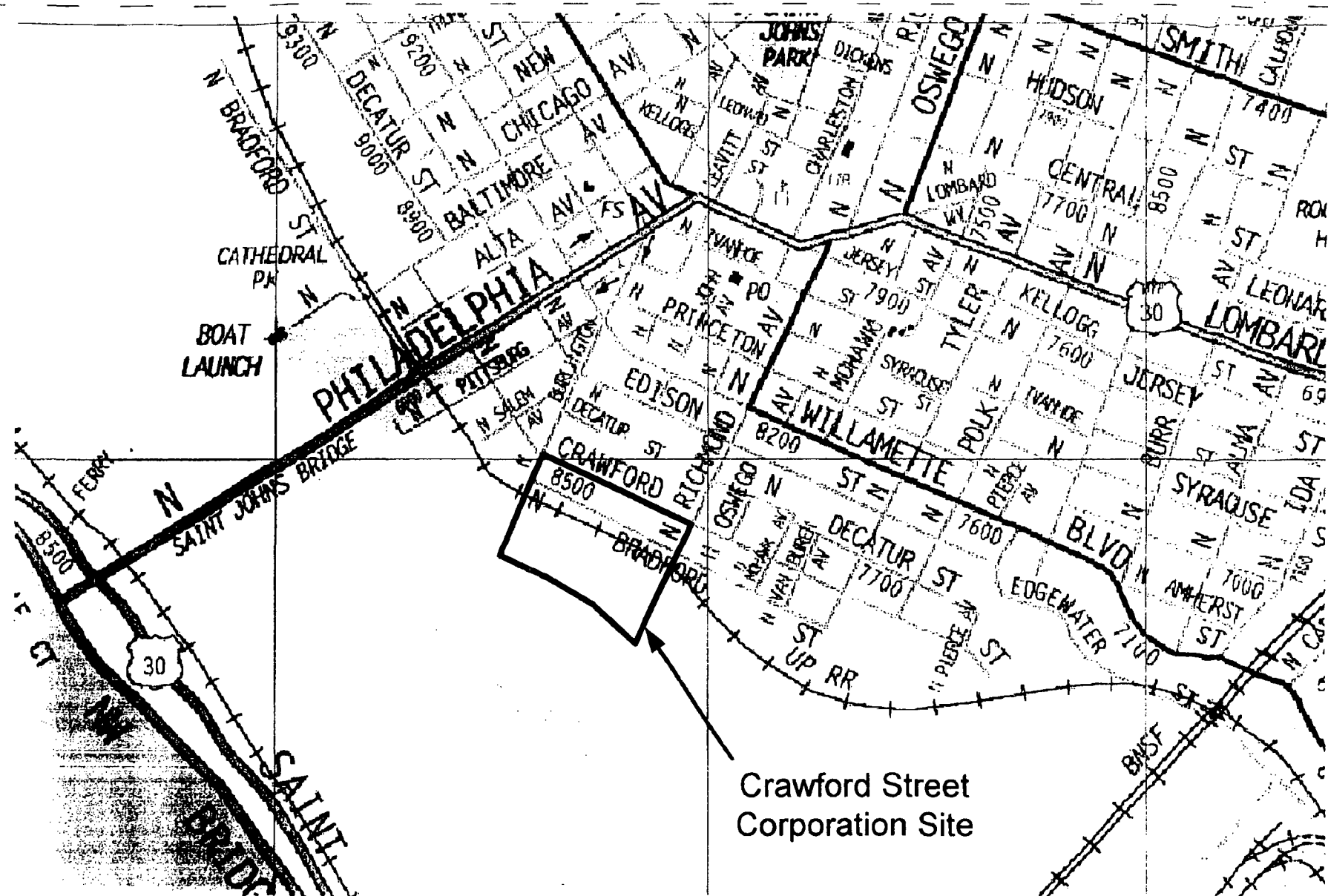
The PA sampling results will be analyzed by comparing the relative COI concentrations in the soil samples from along the UPRR rail spur. In particular, if the COI concentrations in the surface soil samples from where the Columbia Forge storm water runoff infiltrates are greater than the COI concentrations in the other surface soil samples, additional sampling will be performed. Additional sampling will likely include surface water samples collected during rainfall events at the surface soil sample locations and groundwater samples collected at the down gradient edge of the CSC site.

A detailed sampling and analysis plan for any necessary additional sampling, including specific sample types and locations, will be prepared as part of the PA sampling report.

Figures



CRAW000000572



Portland,
Oregon



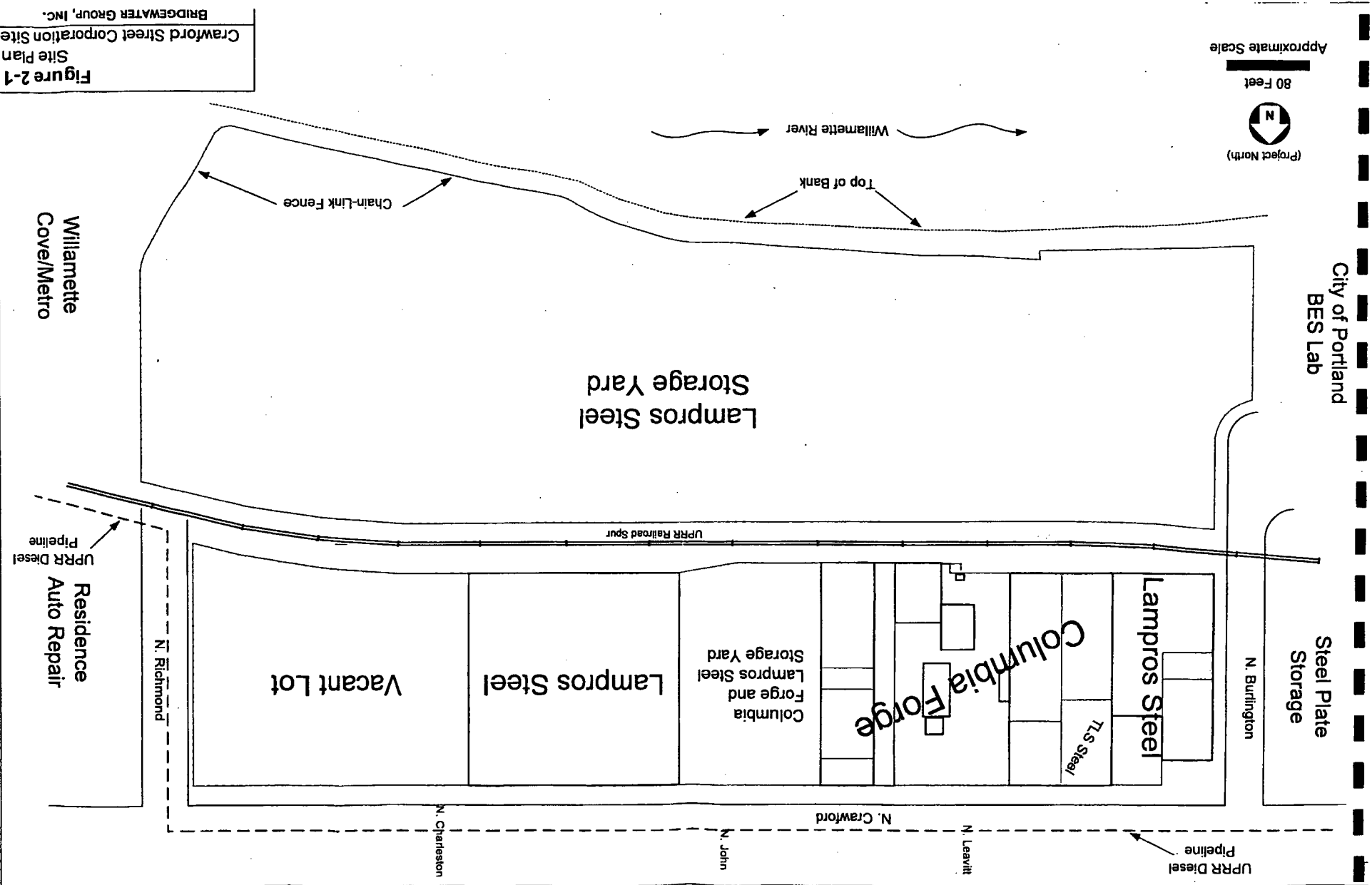
Approximate Scale



770 feet

Figure 1-1
Site Location Map
Crawford Street Corporation Site

BRIDGEWATER GROUP, INC.



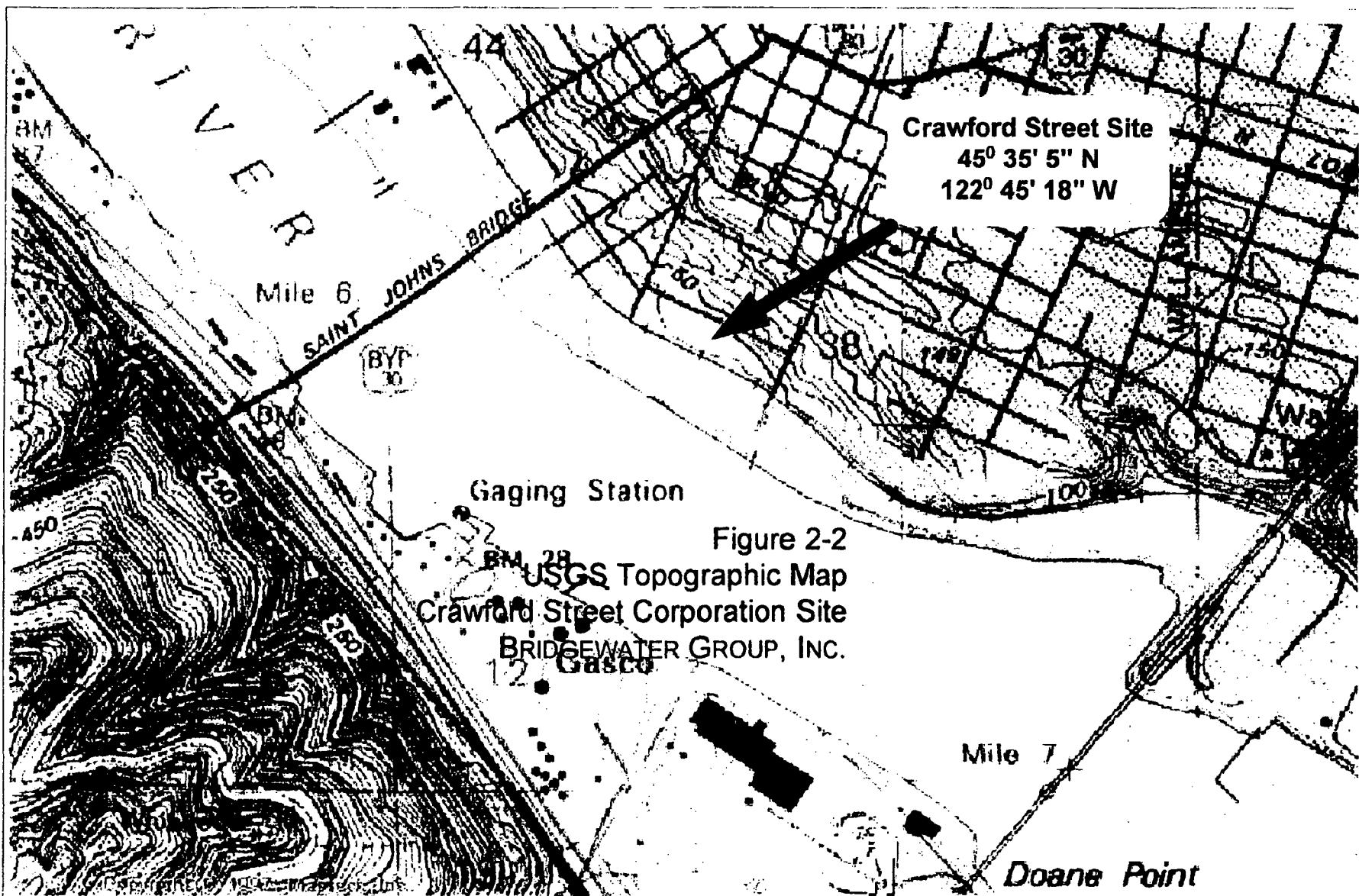


Figure from USGS
Topographic Map Linnton
and Portland Quadrangles
Photorevised 1990

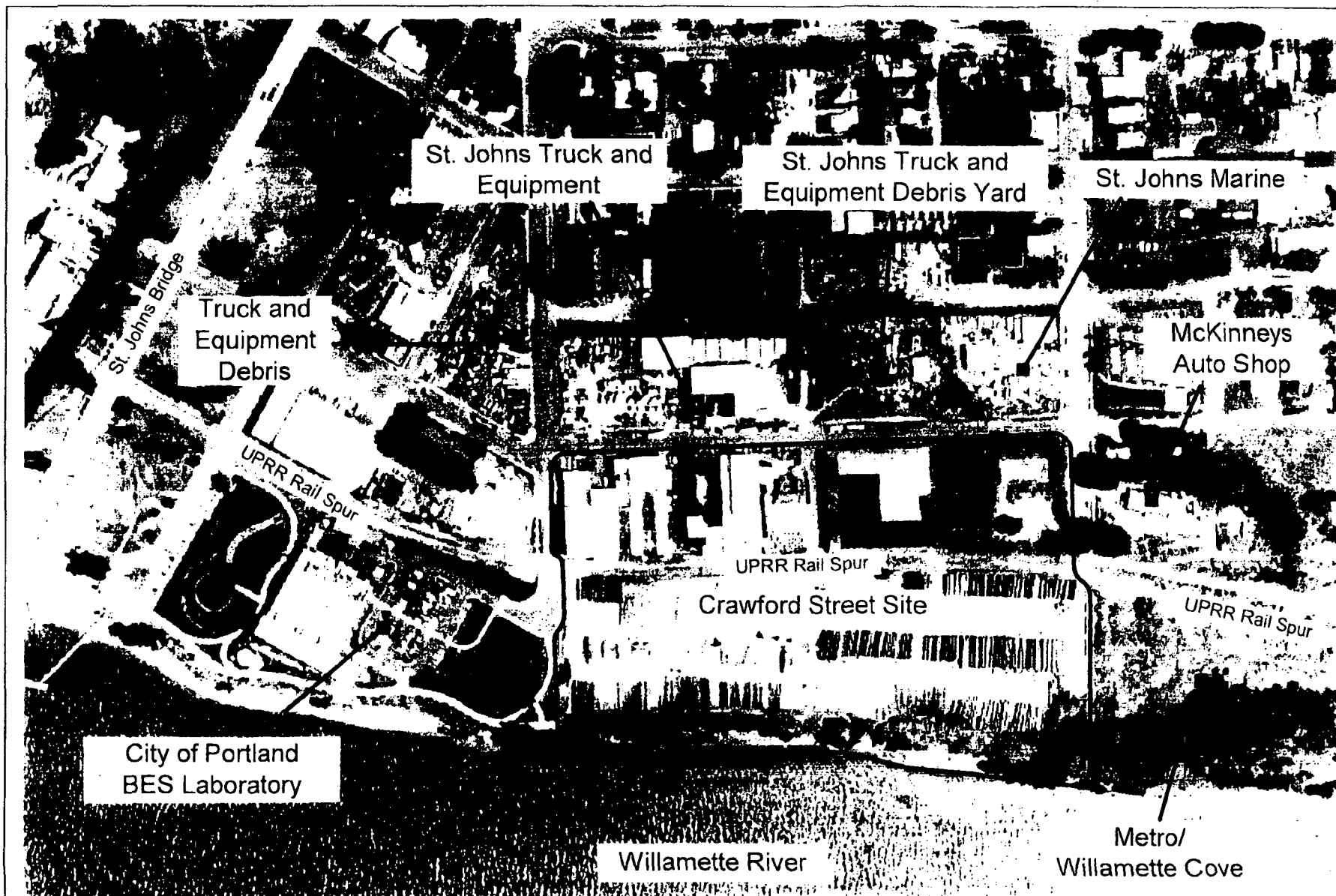
Approximate Scale



833 feet

Figure 2-2
USGS Topographic Map
Crawford Street Corporation Site

BRIDGEWATER GROUP, INC.



(Project North)



Approximate Scale

260 Feet

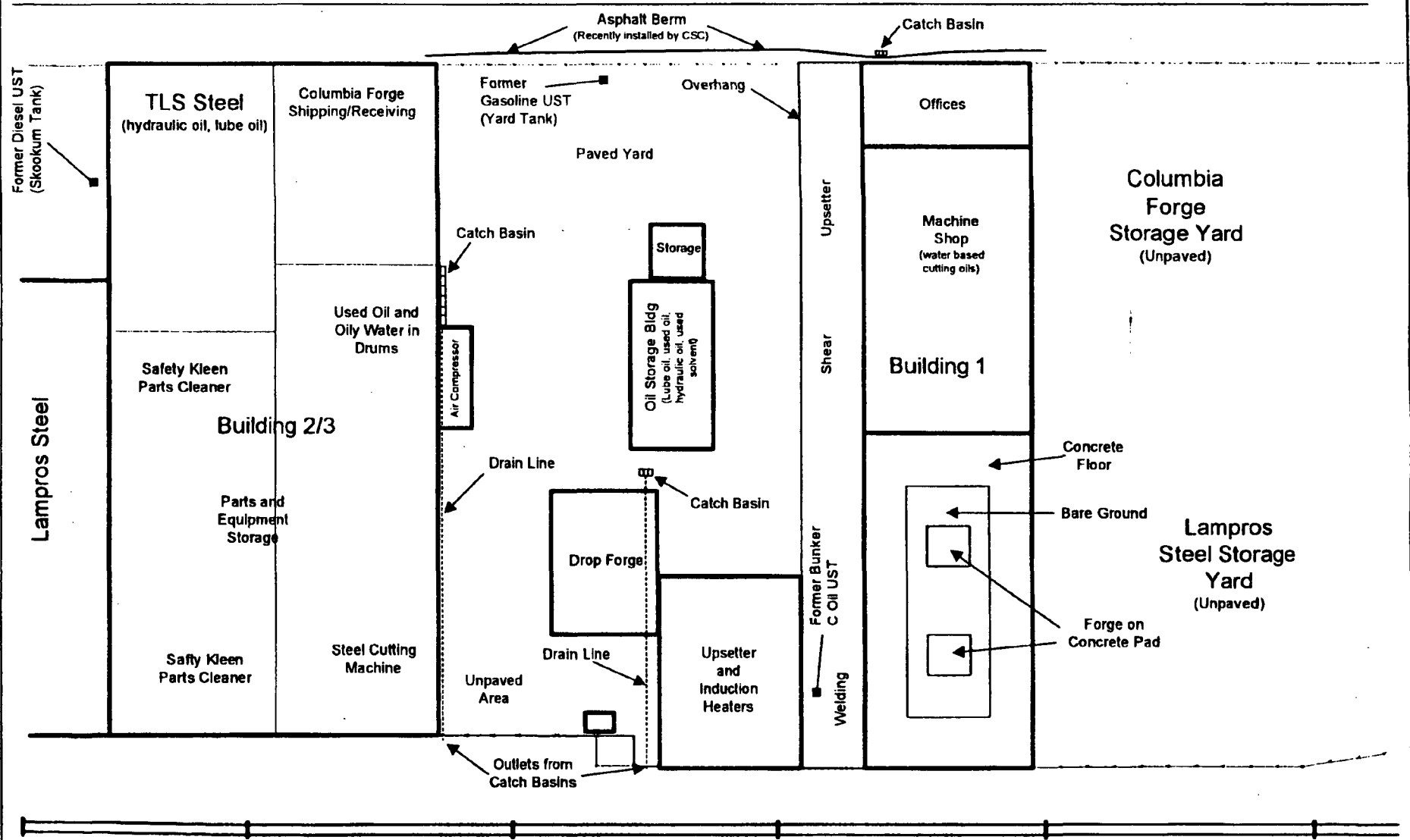
Figure 2-3

1998 Aerial Photograph
Crawford Street Corporation Site

BRIDGEWATER GROUP, INC.

UPRR Diesel Pipeline

North Crawford Street



UPRR Railroad Spur

(Project North)



Approximate Scale

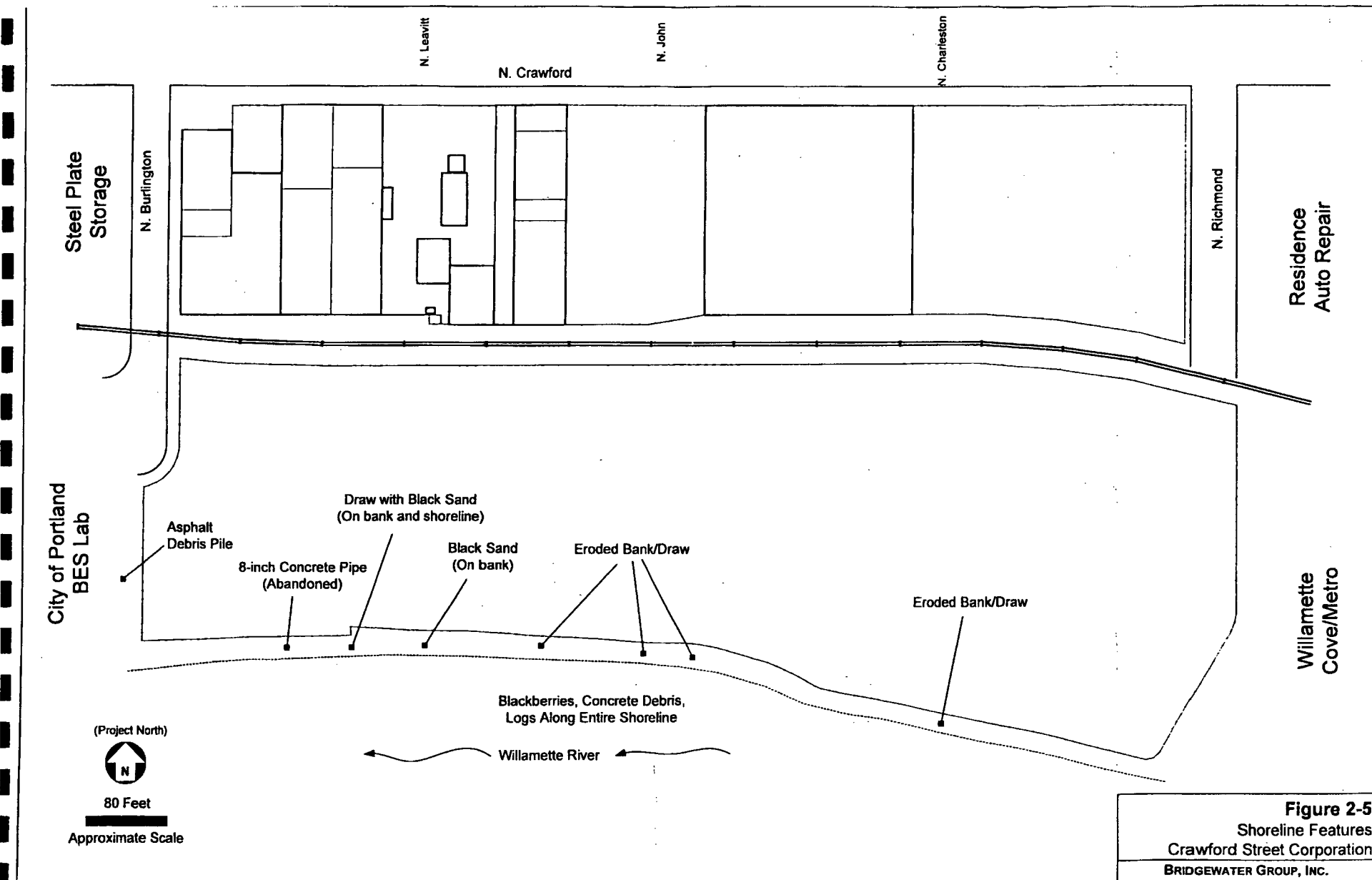


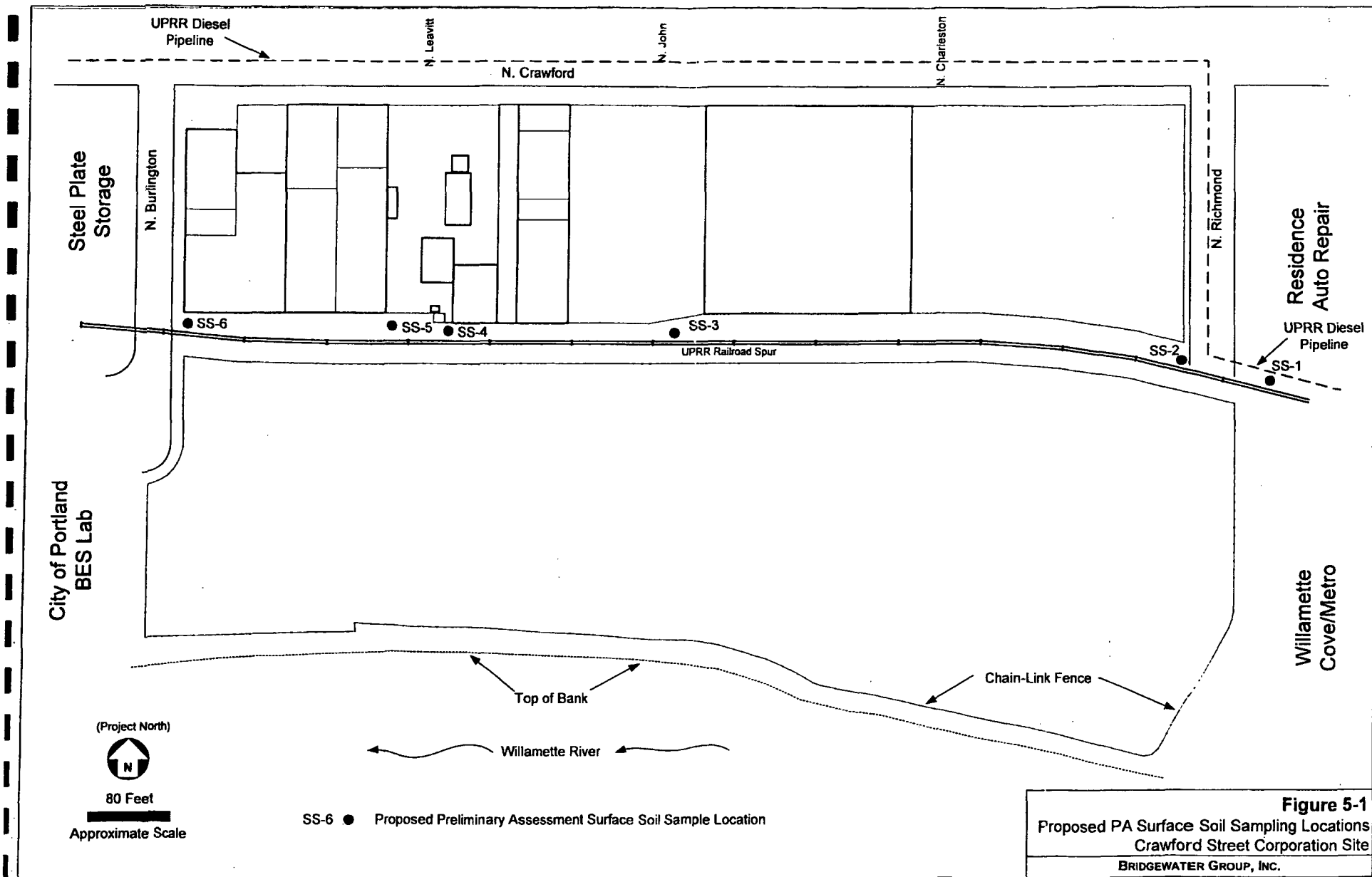
40 Feet

Figure 2-4
Columbia Forge Site Plan
Crawford Street Corporation Site

BRIDGEWATER GROUP, INC.

CRAW00000577





Appendices

A

CRAW00000581

APPENDIX A

**PHOTOGRAPHS OF CURRENT SITE
CONDITIONS**



Photo No. 1

Photo Date: 12/9/99

Looking southeast from intersection of North Burlington and North Crawford Streets.



Photo No. 2

Photo Date: 12/9/99

Looking southwest from intersection of North Richmond and North Crawford Streets.



Photo No. 3

Photo Date: 4/28/99

Looking southwest into South Area (Lampros Steel storage yard) from intersection of UPRR rail spur and North Richmond Street.

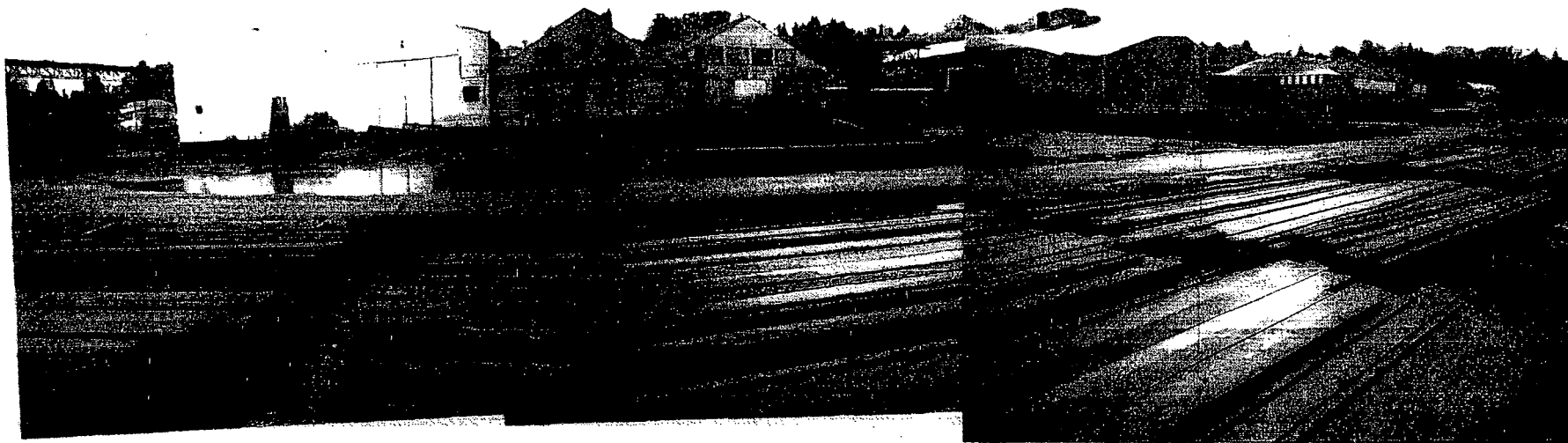


Photo No. 4

Photo Date: 12/9/99

Looking north across South Area (Lampros Steel storage yard) at south side of Columbia Forge and Lampros Steel.

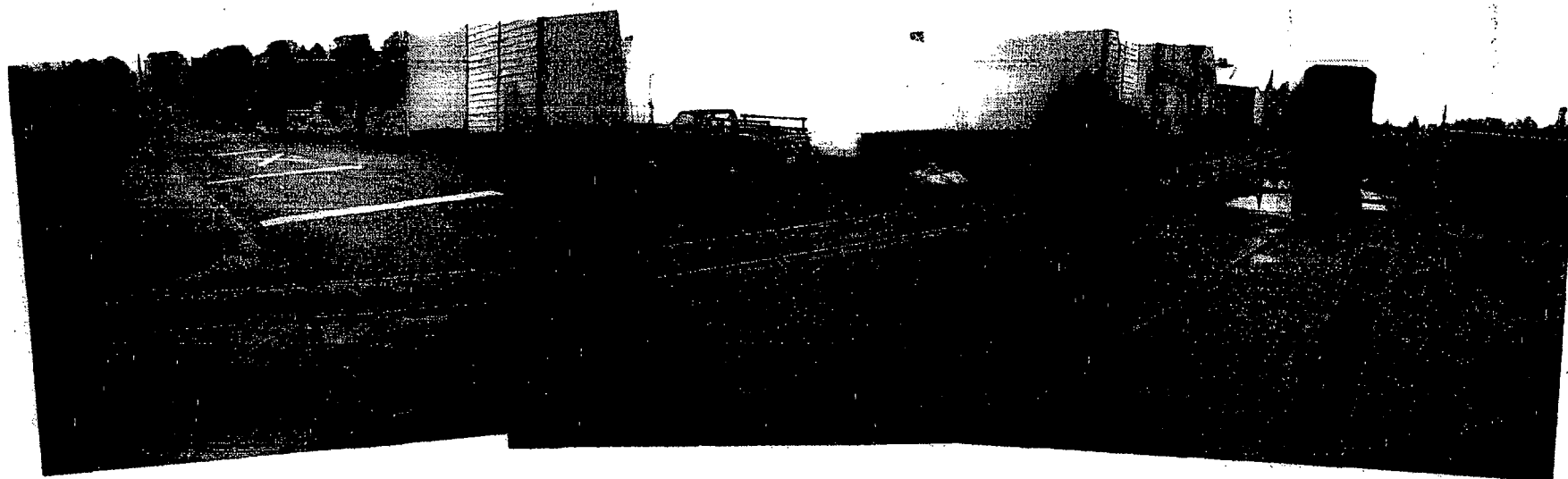


Photo No. 5

Photo Date: 12/9/99

Looking northeast from intersection of North Burlington Street and UPRR rail spur.



Photo No. 6

Photo Date: 12/9/99

Looking south across Columbia Forge/Lampros Steel yard.



Photo No. 7

Photo Date: 12/9/99

Columbia Forge Yard. Looking northwest.

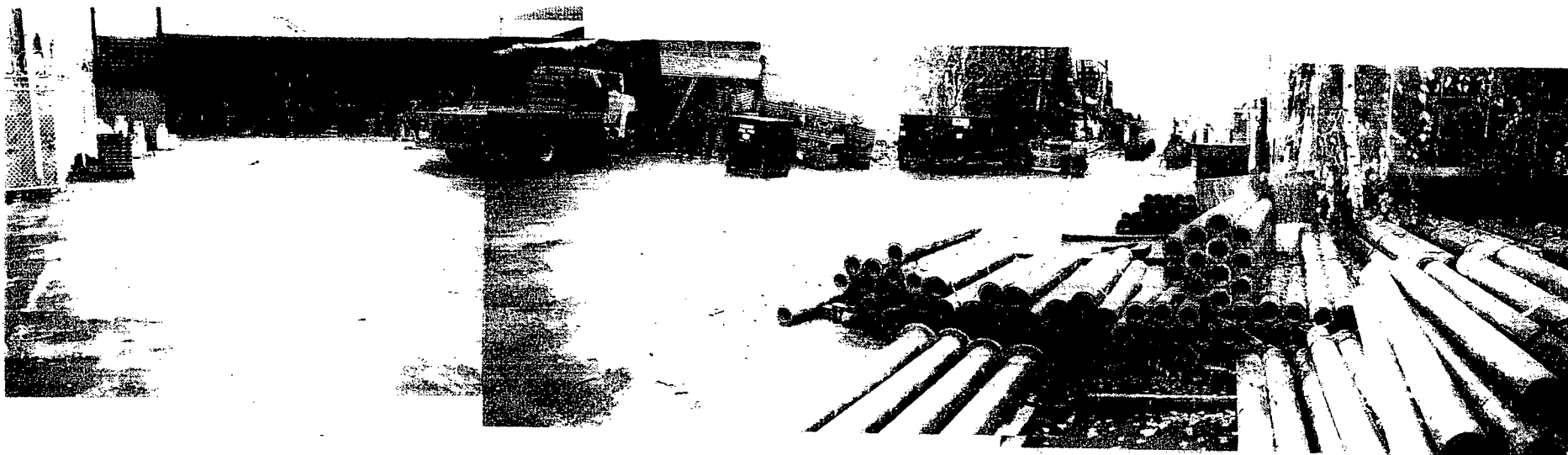


Photo No. 8

Columbia Forge Yard. Looking southeast.

Photo Date: 12/9/99



Photo No. 9

Photo Date: 12/9/99

Southwest area of Columbia Forge Building 1. Looking south.



Photo No: 10

Photo Date: 12/9/99

Machine Shop in north portion of Columbia Forge Building 1.



Photo No. 11

Photo Date: 12/9/99

Inside Lampros Steel



Photo No: 12

Photo Date: 12/9/99

Inside Lampros Steel building at west end of site.

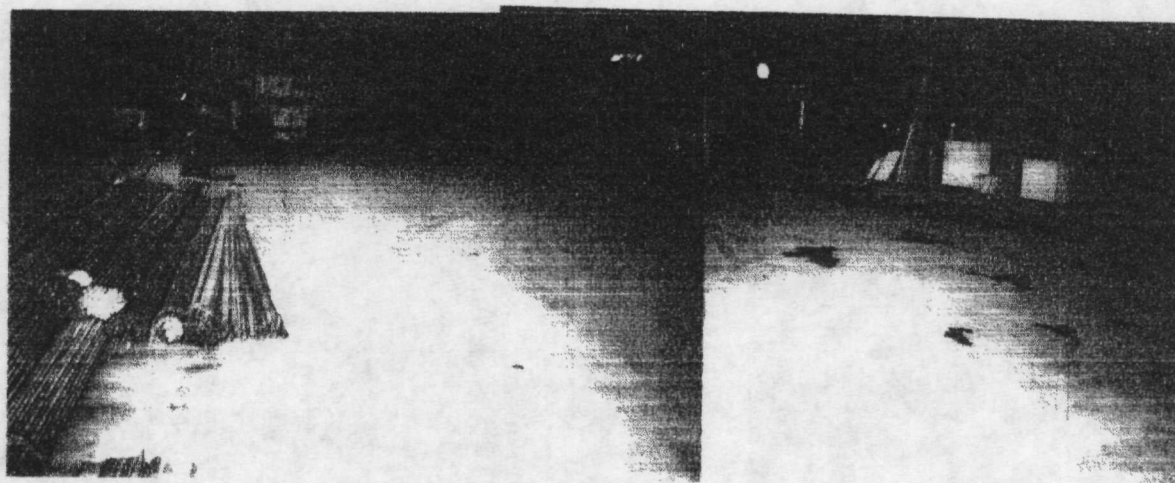


Photo No. 13

Photo Date: 12/9/99

Inside Lampros Steel building at west end of site.

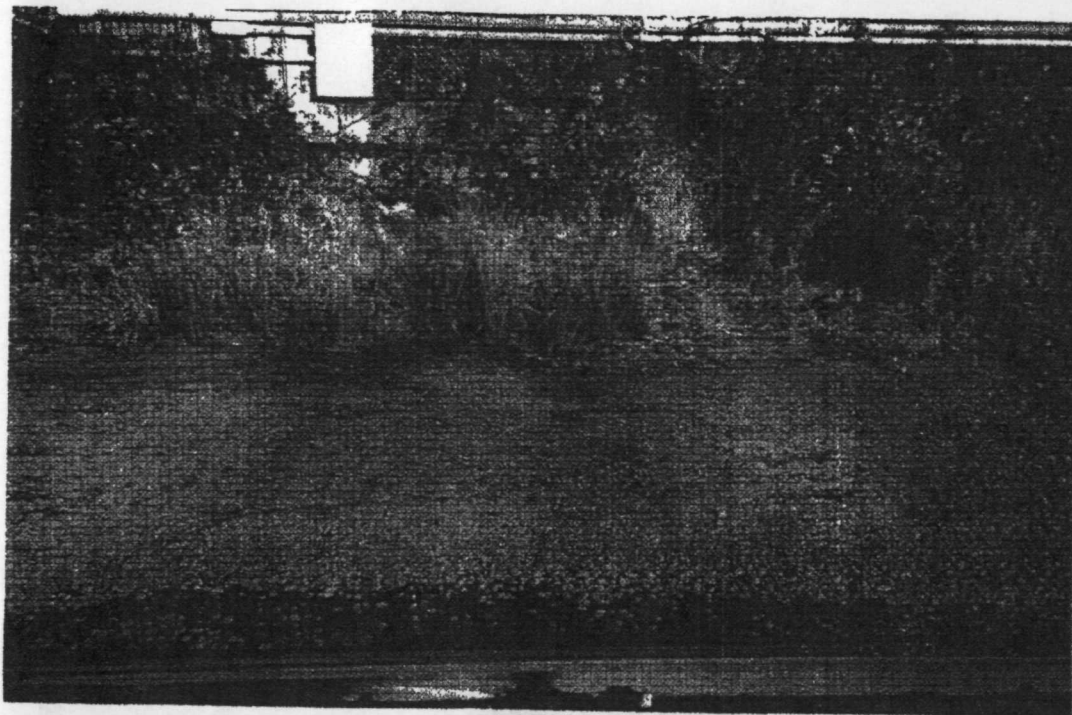


Photo No. 14

Photo Date: 12/21/99

Looking north at drain line outlet from west end of Columbia Forge yard.

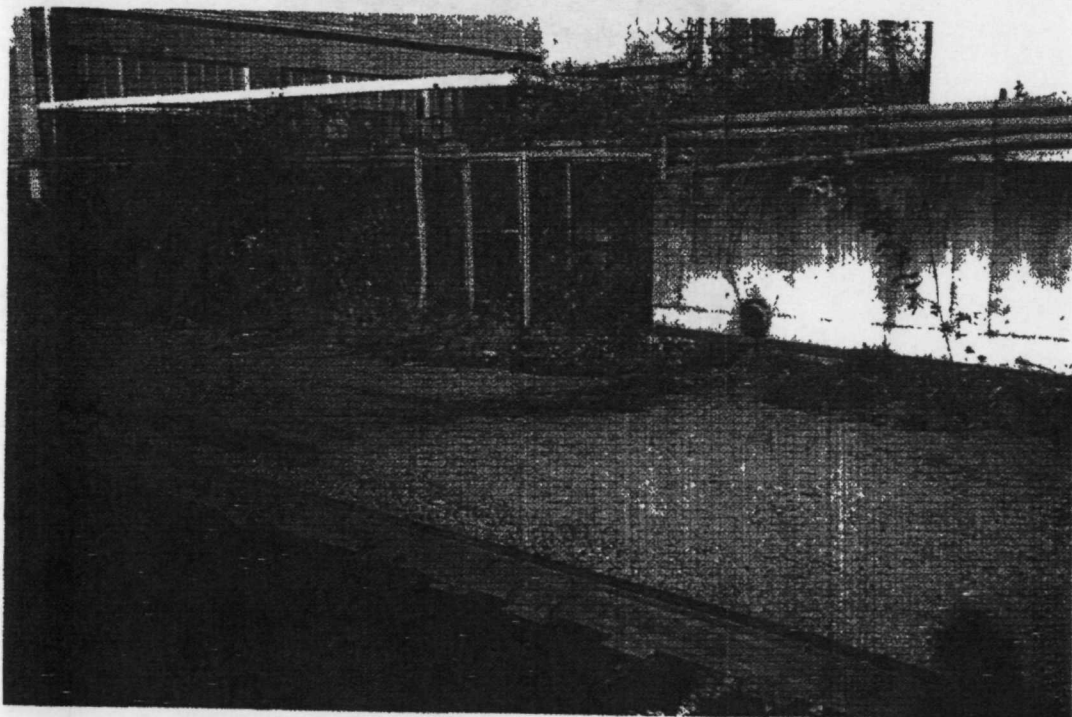


Photo No: 15

Photo Date: 12/21/99

Looking north at drain line outlet from east end of Columbia Forge yard.

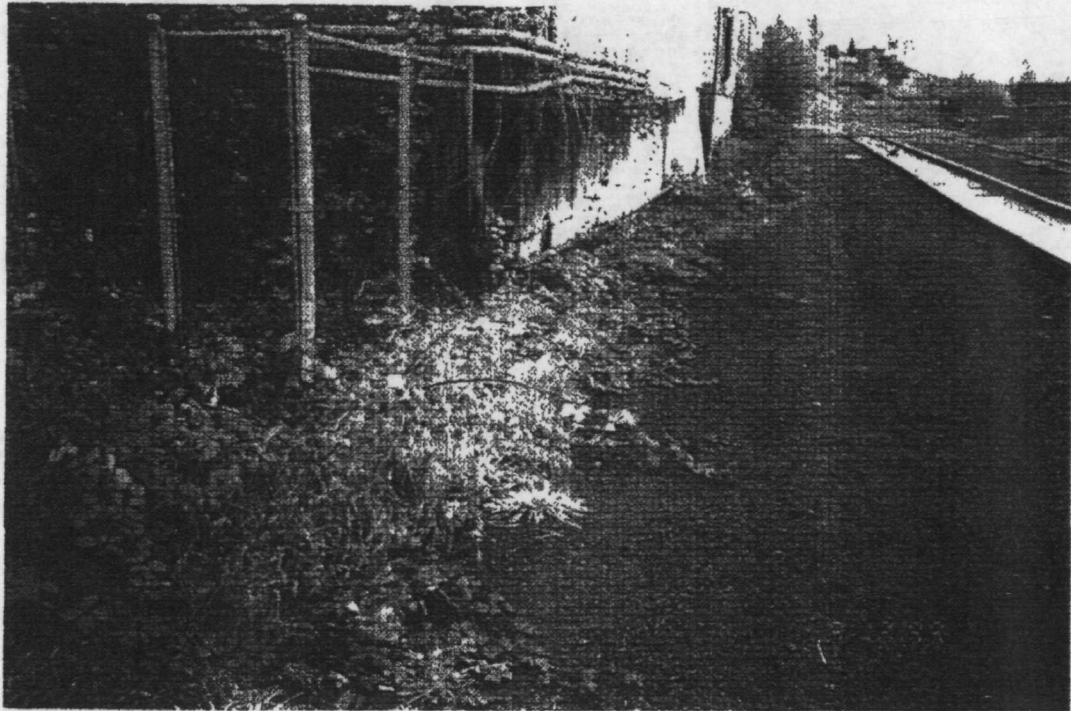


Photo No. 16

Photo Date: 12/9/99

Looking east along UPRR rail spur from south side of Columbia Forge yard.



Photo No. 17

Photo Date: 12/21/99

Typical river bank conditions.



Photo No. 18

Photo Date: 12/21/99

Looking north from north side of Columbia Forge/Lampros Steel yard at St. Johns Truck and Equipment debris yard. Storm water runs from this area, across Crawford Street, and on to and across the storage yard.



Photo No: 19

Photo Date: 12/21/99

Stained wash area adjacent to Crawford Street at St. Johns Truck and Equipment. Across Crawford Street from Columbia Forge.



Photo No. 20

Photo Date: 12/21/99

Looking north at St. Johns Truck and Equipment truck storage yard. Storm water runs from this area, across Crawford Street, and on to and across the Lampros and TLS Steel areas.



Photo No: 21

Photo Date: 12/21/99

Looking south down North Richmond Street. Storm water flows down this street to UPRR rail spur area and to the Lampros Steel south storage yard.

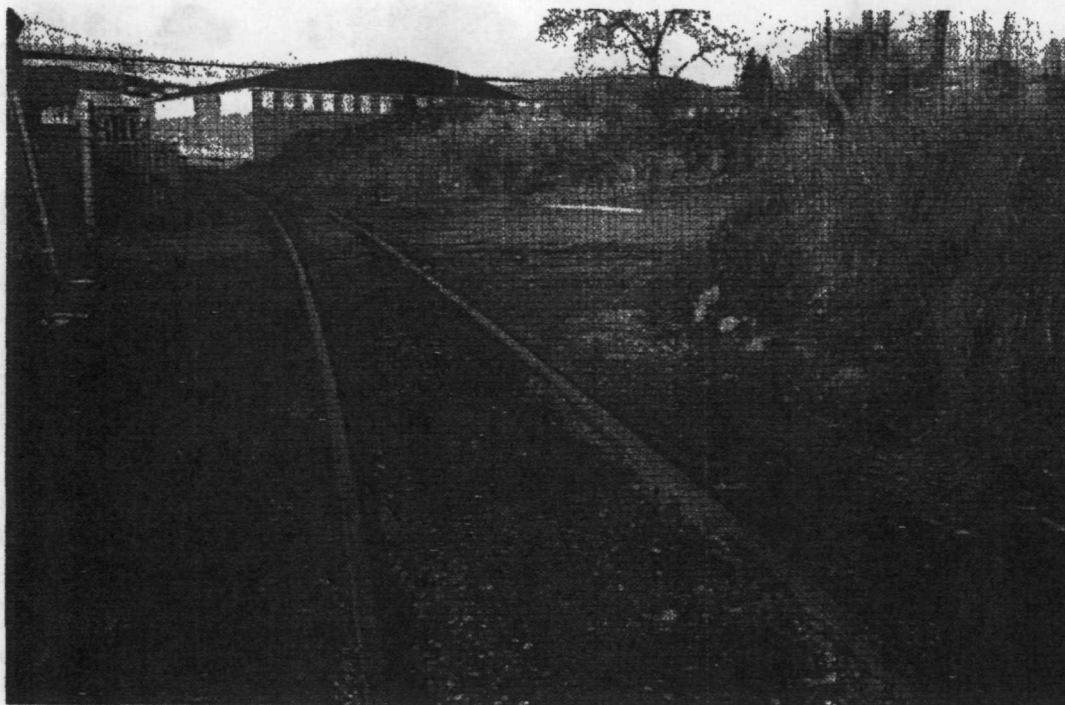


Photo No. 22

Photo Date: 12/21/99

Looking west from east of site along UPRR rail spur. Note fresh oil stain in rail alignment east of Crawford Street. Stain drips continue onto the Crawford Street site.

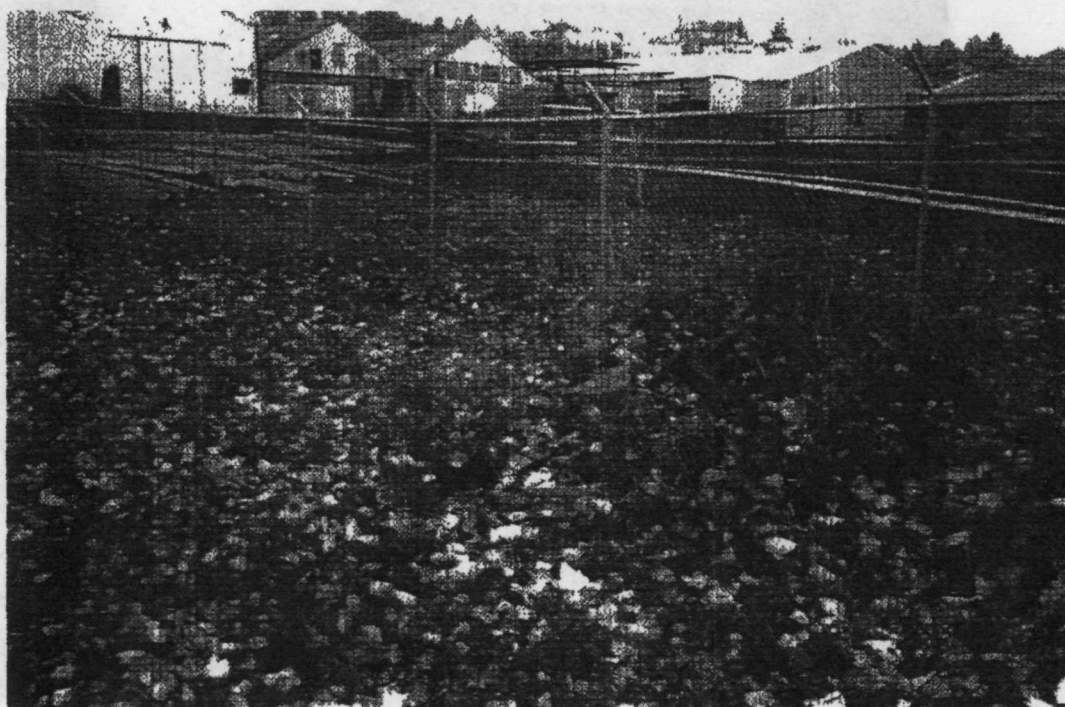


Photo No: 23

Photo Date: 12/9/99

Looking northeast from City of Portland property west of Crawford Street site. Note asphalt and concrete debris pile on City property.

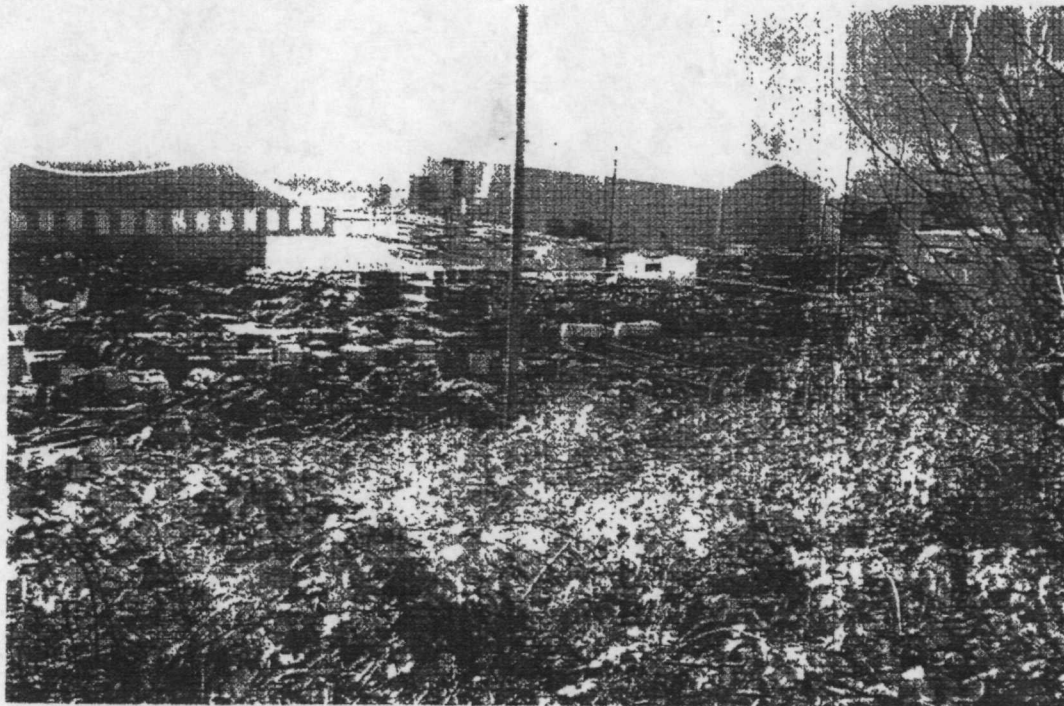


Photo No. 24

Photo Date: 12/21/99

Looking south from hill above site. St. Johns Truck and Equipment debris yard north (up gradient) of Crawford Street site.

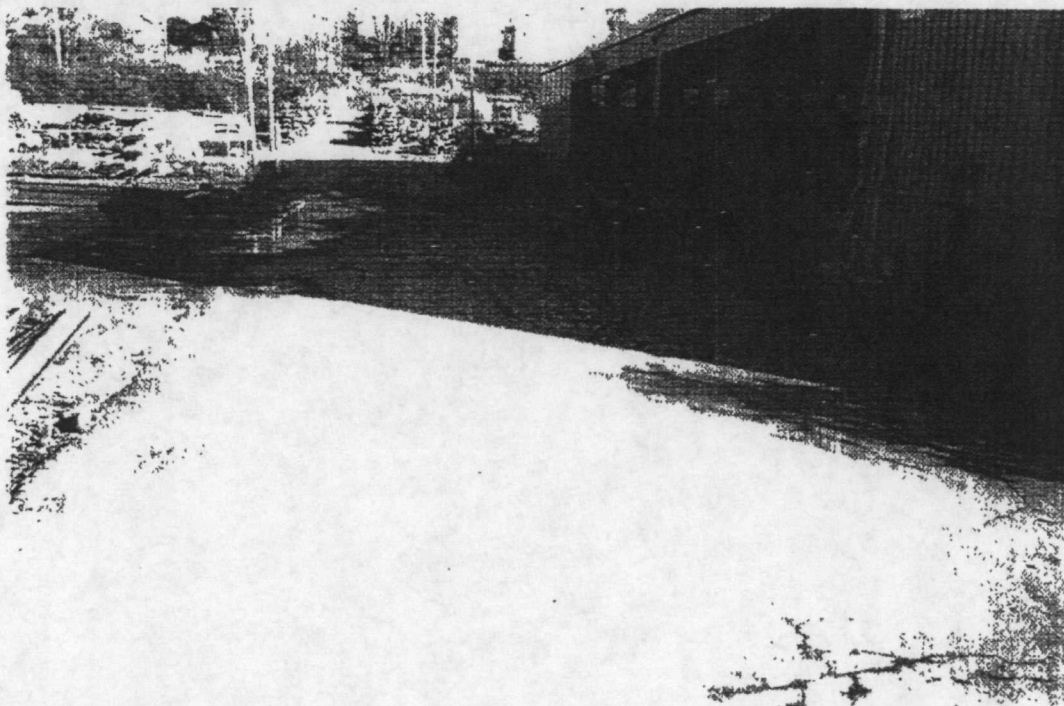


Photo No: 25

Photo Date: 12/21/99

Looking north from south end of Columbia Forge/Lampros Steel yard at UPRR rail spur. St. Johns Truck and Equipment debris yard in distance. Lampros Steel beam cutting building on right.

B

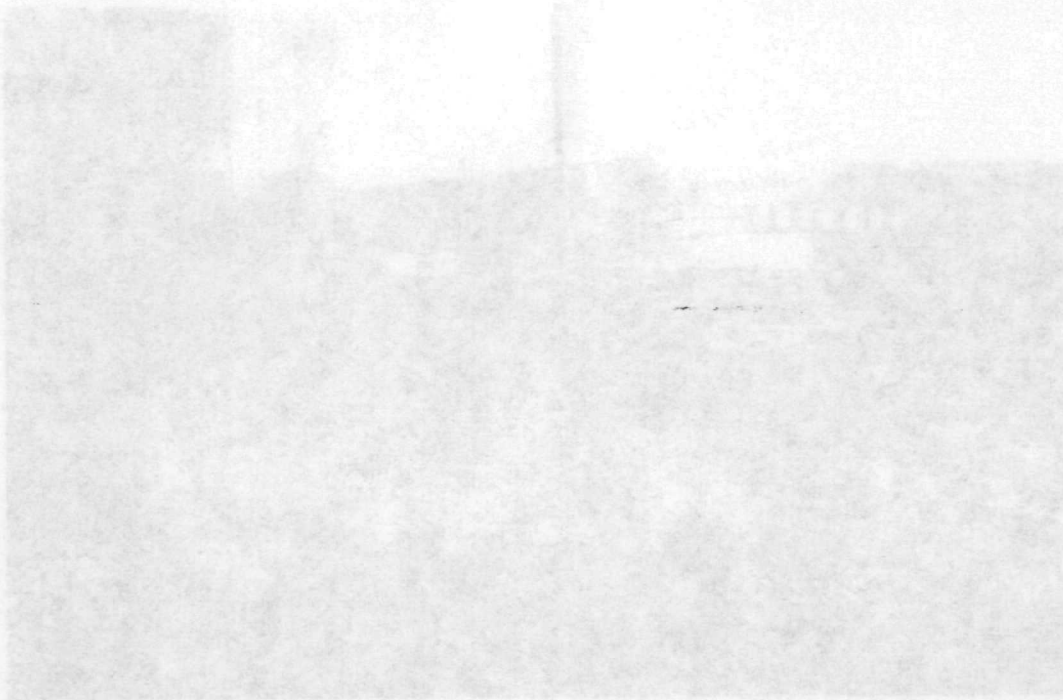


Photo No. 24

Looking south from the active site of John's Truck and Equipment across yard north (up
gradient) of Crawford Street and



Photo No. 25

Looking north from south end of Columbia Parkway on Steel yard at USRR and spot. St.
John's Truck and Equipment across yard in distance. Large Steel beam cutting building on
right

APPENDIX B

**ANALYTICAL LABORATORY REPORT FOR
UNDERGROUND STORAGE TANK REMOVAL
SOIL SAMPLES**



COFFEY LABORATORIES, INC.

4914 N.E. 122nd Ave.

Portland, OR 97230

Phone: (503) 254-1794

March 19, 1987

Log #A870316-B1-2

PO#: 2842

Columbia Forge & Machine
8424 N. Crawford St.
Portland, Oregon 97203

Attention: John Shore

Sample ID: #1 - Skookum, 3/13/87
#2 - Yard, 3/13/87

Samples Received: March 13, 1987

Samples Collected by: Crosby & Overton

ANALYSIS	SAMPLE #1	SAMPLE #2
Gasoline*	< 1.0	16**
Diesel*	< 1.0	< 1.0
Lead	---	30.0

Results in mg/kg

* Analysis by extraction capillary GC/FID.

** Appears to contain some other high boiling oil and possibly some kerosene.

The less than "<" symbol means none detected at or above the indicated value and represents the detection limit for the method.

Approved by,

Susan M. Brillante

Susan M. Brillante,
Laboratory Director

Sincerely,

Susan M. Coffey

Susan M. Coffey,
President

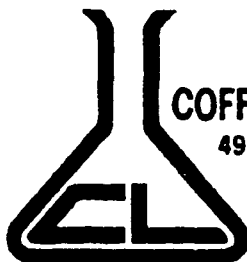
*Soil anal
Yard*

SMC/gs

This report is for the sole and exclusive use of the above client. (ni)
Samples are retained a maximum of 15 days from the date of this letter.

B 11587

CRAW00000602



COFFEY LABORATORIES, INC.

4914 N.E. 122nd Ave.

Portland, OR 97230

Phone: (503) 254-1794

March 24, 1987

Log #A870316-B1-2

Columbia Forge & Machine
8424 N. Crawford St.
Portland, Oregon 97203

ATTENTION: John Shore

SUBJECT: EP TOXICITY ANALYSIS

METHOD: Federal Register, Vol. 45 No. 98, Monday, May 19, 1980,
Rules and Regulations, Appendix II, Page 33127.

FIELD DATA: Sample ID: #2 - Yard
Collected by: Sample collected and delivered by client.

Sample Received: March 16, 1987

ANALYSIS -----	RESULTS -----	LIMIT -----
Lead	< 0.100	5.0

The less than "<" symbol means none detected at or above the indicated value and represents the detection limit for the method.

Results are reported in milligrams per liter (mg/L)

Sincerely,

Susan M. Coffey

Susan M. Coffey,
President

SMC/gs

*ordered 1/14 for 7c
2nd Soil OK
file only E
done*

This report is for the sole and exclusive use of the above client.
Samples are retained a maximum of 15 days from the date of this letter.

B 11588

CRAW00000603



COFFEY LABORATORIES, INC.

4914 N.E. 122nd Ave.

Portland, OR 97230

Phone: (503) 254-1794

March 24, 1987

Log #A870319-K

PO#: 2864

Columbia Forge & Machine
8424 N. Crawford St.
Portland, Oregon 97203

Attention: John Shore

Analysis Requested: Total Hydrocarbons

Sample ID: #3 Weld Shop

Sample Date: March 19, 1987

Sample Received: March 19, 1987

ANALYSIS

RESULTS

Gasoline

< 4 mg/kg

Diesel

< 4 mg/kg

Analysis by capillary GC/FID

The less than "<" symbol means none detected at or above the indicated value and represents the detection limit for the method.

Approved,

Susan M. Brillante

Susan M. Brillante,
Laboratory Director

SMC/gs

Sincerely,

Susan M. Coffey

Susan M. Coffey,
President

*Soil analysis
Weld #
(no rv)*

This report is for the sole and exclusive use of the above client.
Samples are retained a maximum of 15 days from the date of this letter.

B 11592

CRAW00000604